

ORDER NO. KMS0311868C2

Service Manual

DECT Portable Station

KX-TCA155E / KX-TCA155CE
(for United Kingdom and Europe)



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WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you note the serial number, write down all 11 digits. The serial number may be found on the bottom of the unit.

Panasonic

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF.

Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.

When this mark does appear please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

1. ABOUT LEAD FREE SOLDER (PbF: Pb free)

Note:

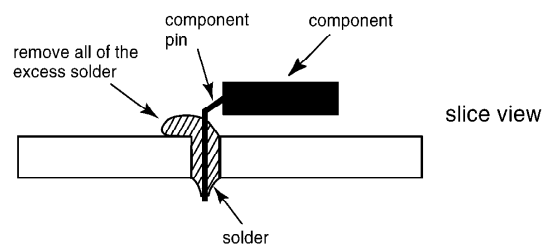
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF solder when discussing the lead free solder used in our manufacturing process which is made from Tin (Sn), Silver (Ag), and Copper (Cu).

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

Caution

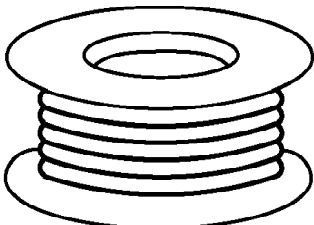
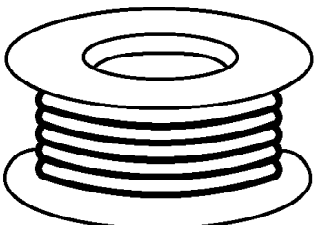
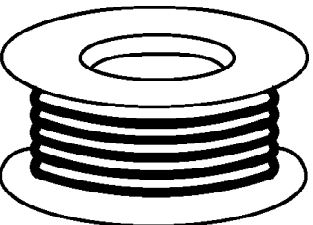
- PbF solder has a melting point that is 50°F ~70°F (30°C ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700°F ± 20°F (370°C ± 10°C). In case of using high temperature soldering iron, please be careful not to heat too long.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F (600°C).
- If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See the figure below).



1.1. Suggested PbF Solder

There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper (Sn+Ag+Cu), you can also use Tin and Copper (Sn+Cu) or Tin, Zinc, and Bismuth (Sn+Zn+Bi). Please check the manufacturer's specific instructions for the melting points of their products and any precautions for using their product with other materials.

The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.

0.3mm X 100g	0.6mm X 100g	1.0mm X 100g
		

1.2. How to recognize that Pb Free solder is used

1.2.1. Handset PCB

(Component View)
(Flow Solder Side View)

Note:

The location of the "PbF" marks is subject to change without notice.

1.2.2. Charger Unit PCB

Note:

The location of the "PbF" marks is subject to change without notice.

2. FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover the plastic parts boxes with aluminum foil.
2. Ground the soldering irons.

3. Use a conductive mat on the worktable.
4. Do not touch IC or LSI pins with bare fingers.

3. CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacture's Instructions.


4. SPECIFICATION

Standard:	DECT= (Digital Enhanced Cordless Telecommunications) GAP=(Generic Access Profile)	Power source:	AC Adaptor
Number of channels:	120 Duplex Channels	Power consumption, Charger Unit:	Standby: Approx. 2.3 W/Maximum: Approx. 6.8 W
Frequency range:	1.88 GHz to 1.9 GHz	Battery life, Handset (if batteries are fully charged):	Stand-by: Up to 120 hours (Ni-MH) Talk: Up to 10 hours (Ni-MH)
Duplex procedure:	TDMA (Time Division Multiple Access)	Operating conditions:	5 - 40 °C, 20 - 80 % relative air humidity (dry)
Channel spacing:	1728 kHz	Dimensions, Handset (D x W x L):	143 mm x 48 mm x 32 mm
Bit rate spacing:	1152 kbit/s	Dimensions, Charger Unit (D x W x L):	84 mm x 86 mm x 60 mm
Modulation:	GFSK= (Gaussian Frequency Shift Keying)	Weight, Handset:	about 125 g
RF Transmission Power:	approx. 250 mW	Weight, Charger Unit:	about 113 g
Voice coding:	ADPCM 32 kbit/s	Connection jack:	RJ11 to BT Plug
Operation range:	Up to 300 m outdoors, Up to 50 m indoors		
Analog telephone connection:	Telephone Line		

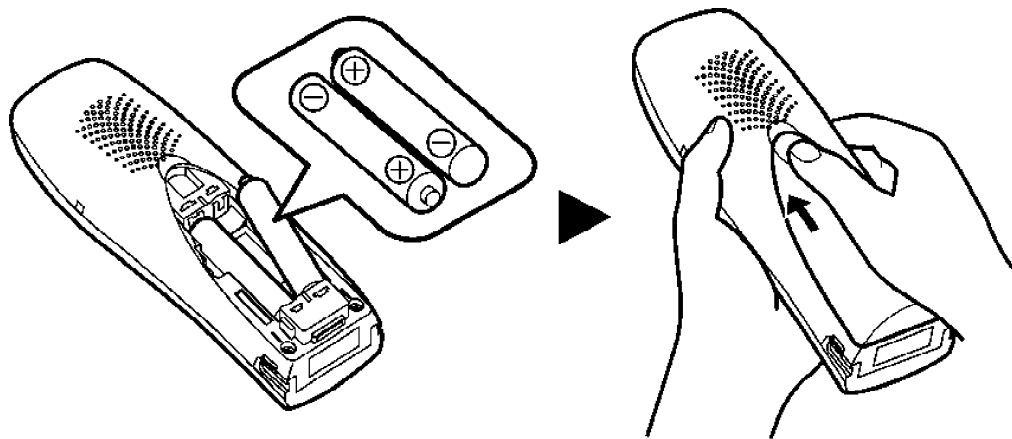
Specifications are subject to change.
The illustrations used in this manual may differ slightly from the original device.

5. BATTERY

5.1. Battery Installation

Insert the batteries as shown. The negative  end should be inserted first.
Close the cover as indicated by the arrow.

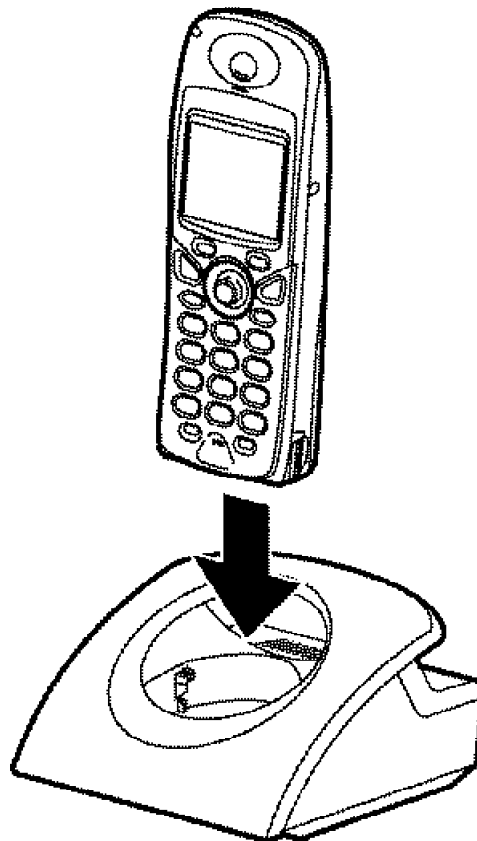
- When you replace the batteries, the positive  end should be removed first.



5.2. Battery Charge

At the time of shipment, the batteries are not charged.

Please charge the batteries for about 7 hours before initial use.




- When the battery has been completely charged, the charge indicator will change from red to green.
- It is normal for the PS and charger to feel warm while the battery is charging.
- Keep devices sensitive to magnetic fields away from the charger.

5.3. Battery Information

After your Panasonic batteries are fully charged [at 25°C]:

Operation	Operating Time
While in use (TALK)	10 hrs approx.
While not in use (Standby)	120 hrs approx.

- Battery charge may be shortened depending on usage conditions and ambient temperature.
- The batteries cannot be overcharged.
- The batteries will drain even while the unit is "OFF".
- The PS can receive calls while charging.
- Battery consumption increases when the PS is used out of range.
If "  " flashes, power off the PS.
- Clean the handset and the charger contacts with a soft, dry cloth once a month. Clean more often if the unit is subject to grease, dust or high humidity. Otherwise the batteries may not charge properly.
- Read "Important Notice Concerning the Correct Use and Charging of Ni-MH Batteries."

5.4. Low Battery Warning

The batteries need to be charged when "  " flashes or the alarm sounds every one minute.*

* If the low battery warning occurs during a conversation, you can continue the call for one minute, then the call will be disconnected automatically.

5.5. Replacing the Batteries

If "  " flashes after a few telephone calls even when the batteries have been fully charged, it is time to replace the batteries with new ones.

Before replacing the batteries, turn the power off to prevent memory loss. Replace the batteries. Charge the new batteries for at least 7 hours.

If you replace the batteries before the low battery warning appears, the battery strength icon may display an incorrect reading. In this case, use the PS as normal with the new batteries installed. When the low battery warning is displayed, charge the batteries for about 7 hours.

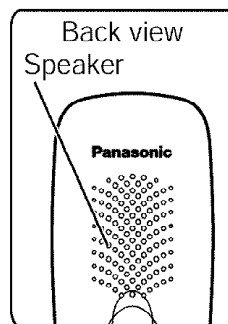
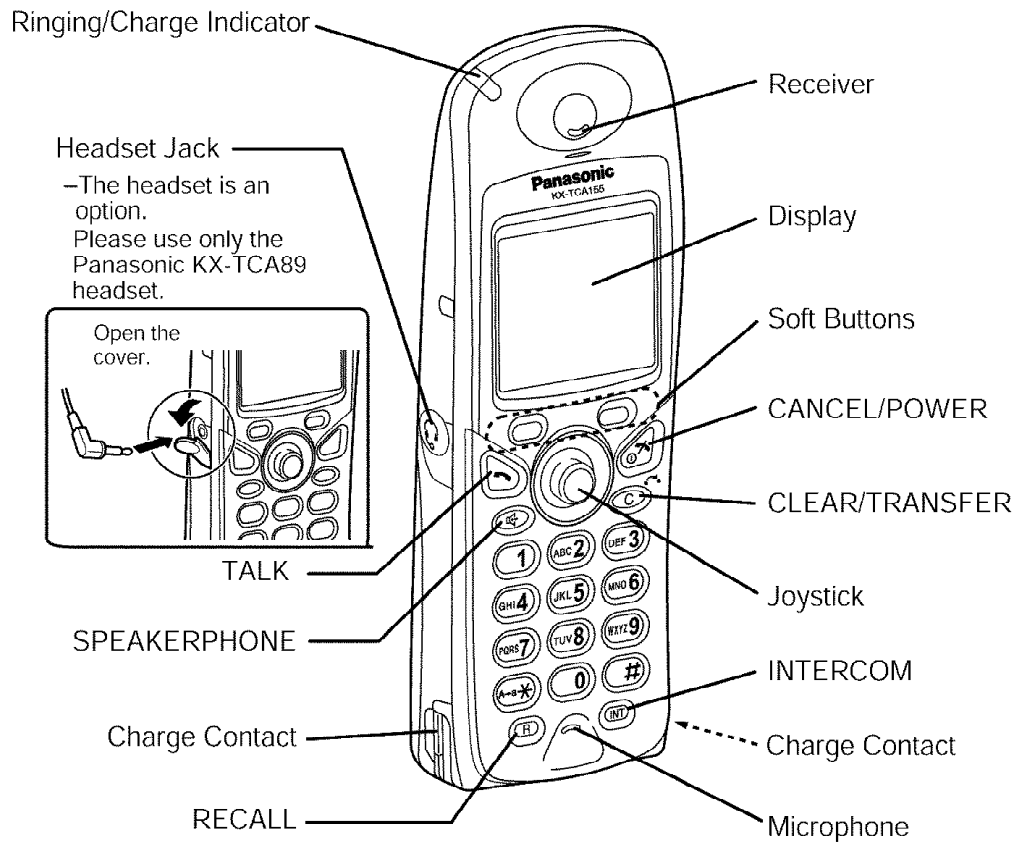
The battery strength icon will then display a correct reading.

- **Replace both batteries and close the cover then charge the handset for about 7 hours.**

Please order Panasonic P03P(Ni-MH) batteries.

6. LOCATION OF CONTROLS

6.1. Handset



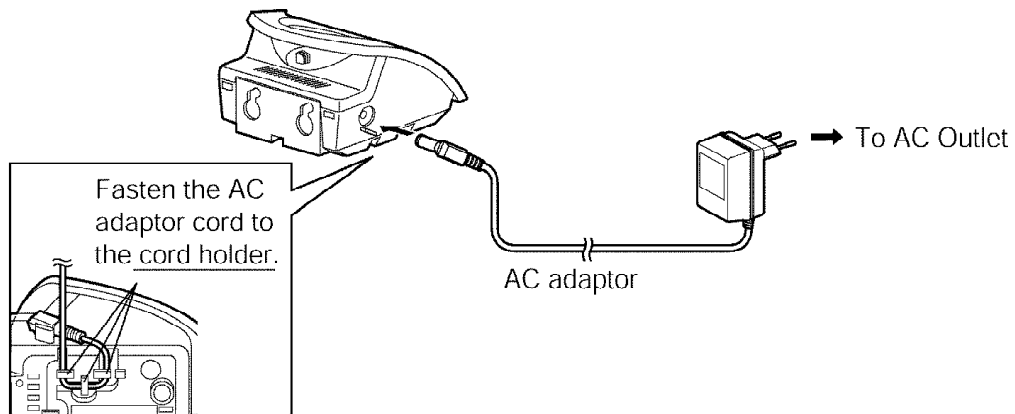
6.2. Soft Key Display

Icons and information shown on the display will vary depending on the state of use. To select an item shown on the display, press the corresponding soft buttons.

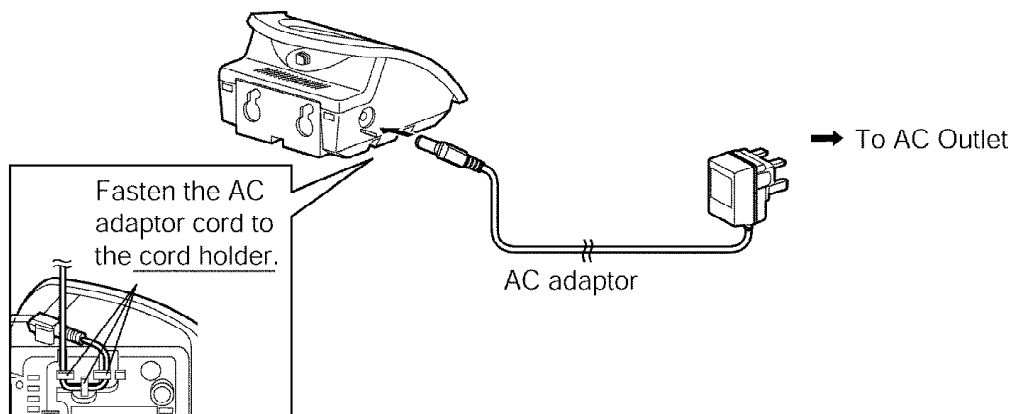
	Opens the Handset Phonebook.		Used to set the time for memo alarm.
	Opens the function menu.		Used to clear the memo alarm display setting, or enter an X when storing the "Line Access CD".
	Used to redial.		Used to select an item when in setting mode.
	Used to confirm the entry.		Displayed when in (Alphabetic) character entry mode.
	Turns the ringer off.		Displayed when in (Numeric) character entry mode.
	Opens the PBX System Phonebook.		Displayed when in (Greek) character entry mode.
	Opens the PBX Extension Phonebook.		Displayed when in (Extended 1) character entry mode.
	Opens the incoming call log.		Displayed when in (Extended 2) character entry mode.
	Opens the incoming call log group.		Displayed when in key lock, and used to unlock the dialling buttons.
	Displays the next screen.		Used to search for an item in the Phonebook alphabetically.
	Clears digits or characters.		Used to place a call on hold.
	Inserts a dialling pause.		Used to establish a multiple-party conversation.
	Returns to the previous screen.		

7. SETTINGS

7.1. Connection



- USE ONLY the Panasonic AC ADAPTOR PQLV200CEZ.



- USE ONLY the Panasonic AC ADAPTOR PQLV200EZ.

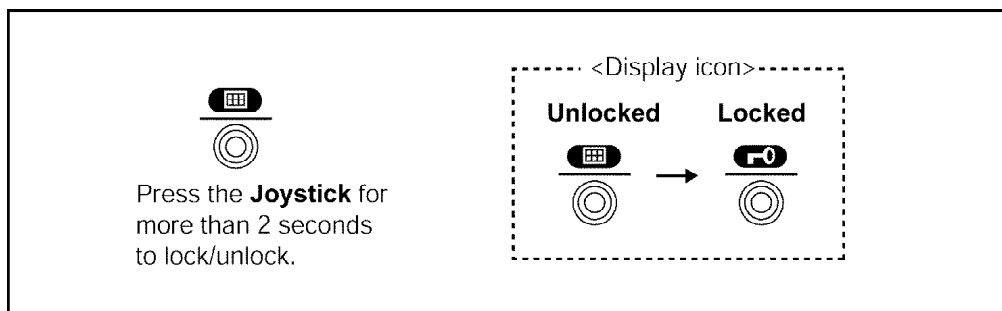
7.2. Settings Menu Chart

7.2.1. Handset

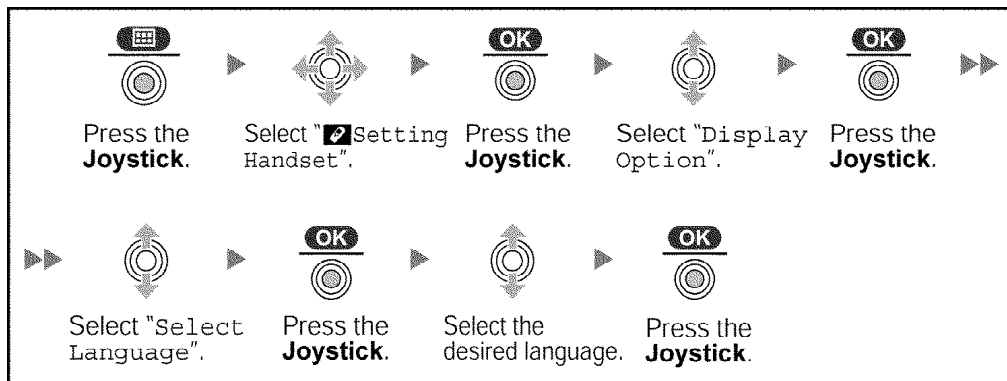
1st Menu	2nd Menu	3rd Menu
Setting Handset	Set Date/Time	
	Memo Alarm	
	Ringer Option	Ringer Volume
		EXT Ringer Type
		INT Ringer Type
		Paging Tone
		Private Ring
	Tone Option	Key Tone
	Display Option	Standby Display
		Talk Display
		Select Language
		Private Colour
		Category Name
	Call Option	Call Bar
		Direct Call No.
		Direct On/Off
	Registration	Register H/set
		Cancel Base
	Select Base	Auto
		Base 1 : Base 4
	Other Option	Change H/S PIN
		Change H/S Name
		Auto Talk
		LetterWise
		Battery Type
		Reset Handset

7.3. Key Lock

You can lock the dialling buttons while the PS is in idle status.



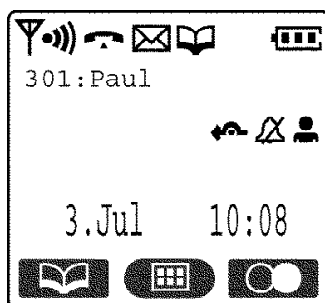
7.4. Selecting the Display Language



- The display language of both the PS and Business Telephone System can be selected, and both should be set to the same language. Refer to the Business Telephone System User manual for more details.

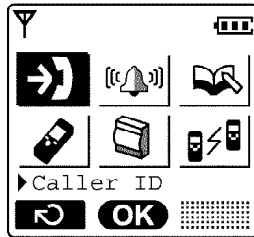
8. DISPLAY

8.1. Display Icons



	Within range of a Cell Station
	Out of range, No registration
	Intercom Indicator
	Off-hook Status
	Message Waiting
	Phonebook Mode
	Battery strength
	Hot line ON
	Ringer Volume OFF
	Call Forwarding
	Do Not Disturb

8.2. Main Menu-while in standby mode



Caller ID:
Displays the incoming call log.



Ringer Option:
Accesses to the "Ringer Option".



New Phonebook:
Stores a new item in the Handset Phonebook.



Setting Handset:
Accesses to the "Setting Handset".

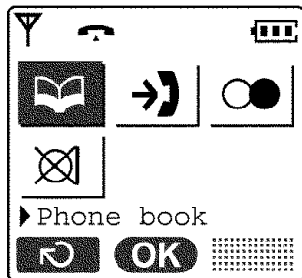


PBX Program:
Enters the PBX programming mode.



Walkie-Talkie:
Sets or turns on/off the Walkie-Talkie mode.

8.3. Sub menu-while in off-hook/during a conversation



Phone book:
Accesses to the Phonebook.



Caller ID:
Displays the incoming call log.



Redial:
Displays the outgoing call log.



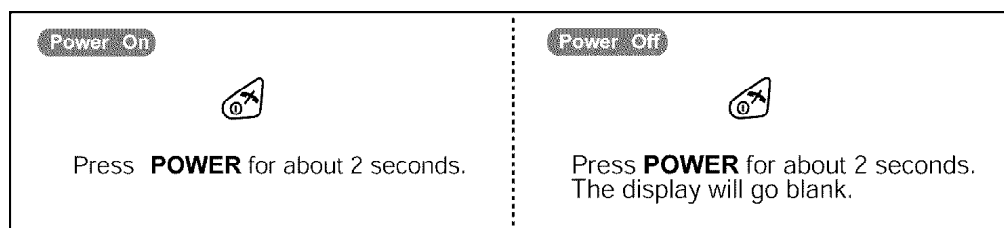
Mute:
Turns the microphone on/off.

8.4. Troubleshooting

Problem	Description and Solution
The PS does not work.	<ul style="list-style-type: none"> The battery is drained. ➔ Charge the battery fully. The PS has been cancelled or the PS has not been registered. ➔ Consult your dealer. The power is OFF. ➔ Turn it ON.
The PS does not ring.	<ul style="list-style-type: none"> Ringer volume is set to "off" ➔ Adjust the ringer volume level.
You cannot make/receive a call.	<ul style="list-style-type: none"> The PS is out of range or the Cell Station (CS) is busy. ➔ Move closer to the CS or try again later. The radio channel is busy or a radio communication error occurred. ➔ Try again later.
You cannot dial.	<ul style="list-style-type: none"> The number which you dialled is restricted by the Business Telephone System. ➔ Consult your dealer. The key lock mode is ON. ➔ To cancel the mode, press the Joystick for about 2 seconds. The radio channel is busy or a radio communication error occurred. ➔ Try again later.
Noise is frequently heard.	<ul style="list-style-type: none"> ➔ Set the PS and CS away from other electrical appliances. ➔ Move closer to the CS.
"CS BUSY" is displayed.	<ul style="list-style-type: none"> When the Cell Station is busy, the PS will sound a search tone. If the PS does not find an available Cell Station, a busy tone will be heard. ➔ Try again later.
"PS Not Connected" is displayed.	<ul style="list-style-type: none"> The called PS is out of range or the PS is power off. ➔ Try again later.
The PS stops working during operation.	<ul style="list-style-type: none"> ➔ Turn the power OFF and ON, then try again. ➔ Reinsert the batteries and try again.

9. OPERATIONS

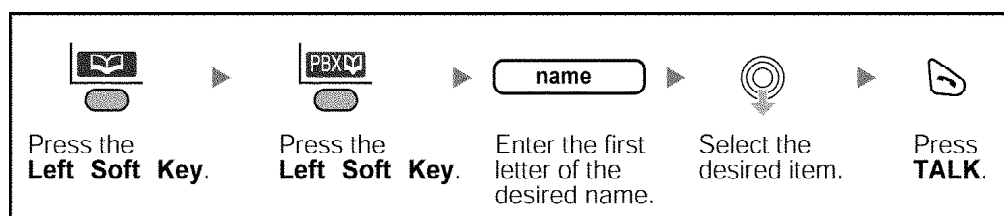
9.1. Power ON/OFF



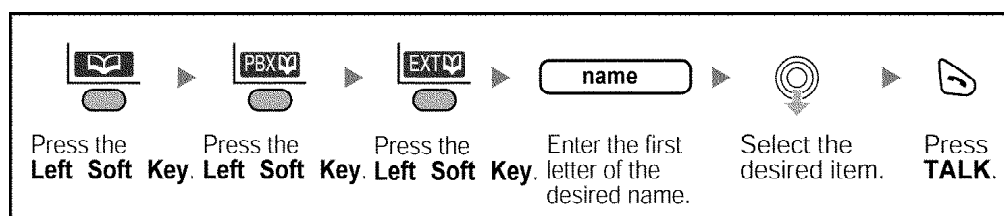
9.2. Handset Phonebook



9.3. PBX System Phonebook




9.4. PBX Extension Phonebook

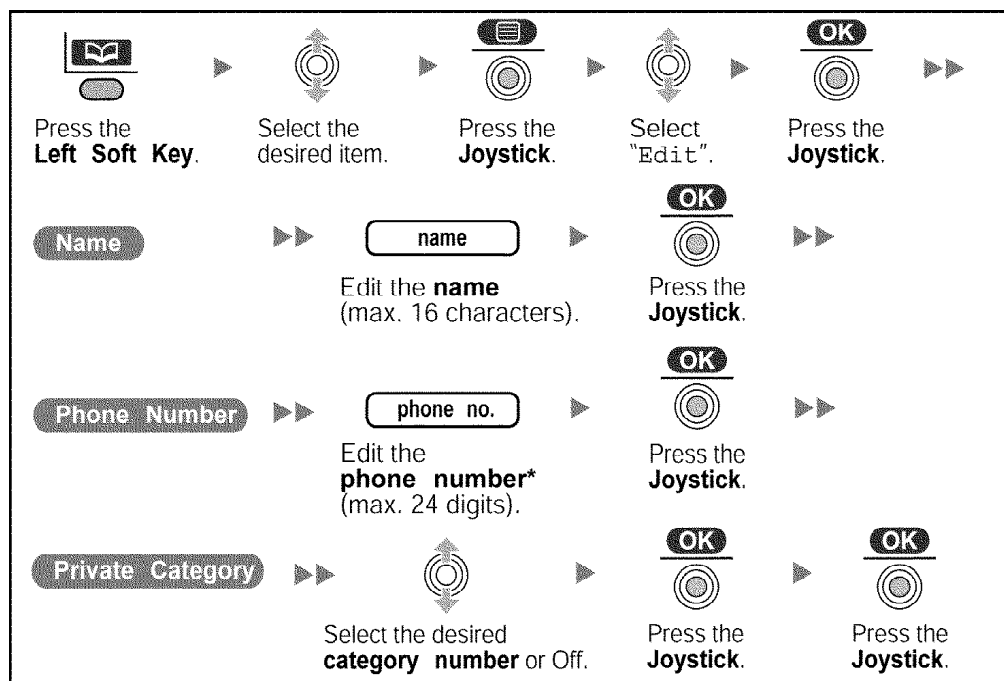


9.5. Character Mode Table

Buttons	ABC (Alphabet)	0-9 (Numeric)	ABΓ (Greek)	AÄÅ (Extended 1)	SŠŠ (Extended 2)
①	Space # & ' () * , - . / 1	1	Space # & ' () * , - . / 1		
②	A B C 2	2	A B Γ 2	A Ä Å A Ä Å A E B C Ç 2	A Ä Å A B C Č Ć 2
	a b c 2			a ä å a ä å a æ b c ç 2	a ä å A b c Č Ć 2
③	D E F 3	3	Δ E Z 3	D E Ě Ě Ě Ě F 3	D Ď Ě Ě Ě F 3
	d e f 3			d e ě ě ě ě f 3	d ě e ě ě f 3
④	G H I 4	4	H Θ I 4	G Ğ H I Ĭ Ĭ Ĭ Ĭ I 4	G H Í I 4
	g h i 4			g ğ h ĭ ĭ ĭ ĭ i 4	g h í i 4
⑤	J K L 5	5	K Λ M 5	J K L 5	J K L Ľ Ľ Ľ 5
	j k l 5			j k l 5	j k l Ľ Ľ Ľ 5
⑥	M N O 6	6	N Ξ O 6	M N Ń O Ő Ő Ő Ő Ő 6	M N Ń Ń O Ő Ő Ő 6
	m n o 6			m n ñ o ő ő ő ő ő 6	m n Ń ñ o ő ő ő 6
⑦	P Q R S 7	7	Π Ρ Σ 7	P Q R S Š 7	P Q R Ř Š Š Š 7
	p q r s 7			p q r s š 7	p q r ř š š š 7
⑧	T U V 8	8	Τ Υ Φ 8	T U Ů Ú Ů Ů Ů V 8	T Ě U Ů Ů Ů Ů V 8
	t u v 8			t u ů ú ů ů ů v 8	t ě u ů ů ů ů v 8
⑨	W X Y Z 9	9	Χ Ψ Ω Ὢ 9	W Ŵ X Y ŷ Z 9	W X Y ŷ ŷ Z Ž Ž Ž 9
	w x y z 9			w ŵ x y ŷ z 9	w x y ŷ ŷ z ž ž ž 9
⑩	Space 0	0	Space 0		

- The following letters of Greek, Polish, Czech and Slovakian are not available:
ą ć ċ đ ě Ě Ĭ ĩ ŕ Ń Ø ř š ŝ ť w ŷ Ÿ ž ž ž
Then same letter as capital (or small) will be displayed.
- Press  to change between uppercase and lowercase.

9.6. Editing





- * The Valid digits are "0" through "9", "", "#", PAUSE.

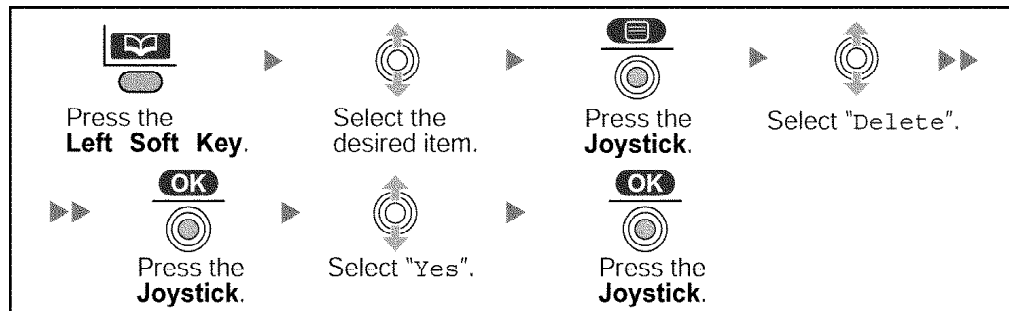
- To change a character or digit, press  to highlight it, press

C to delete it, then enter the new character or digit.

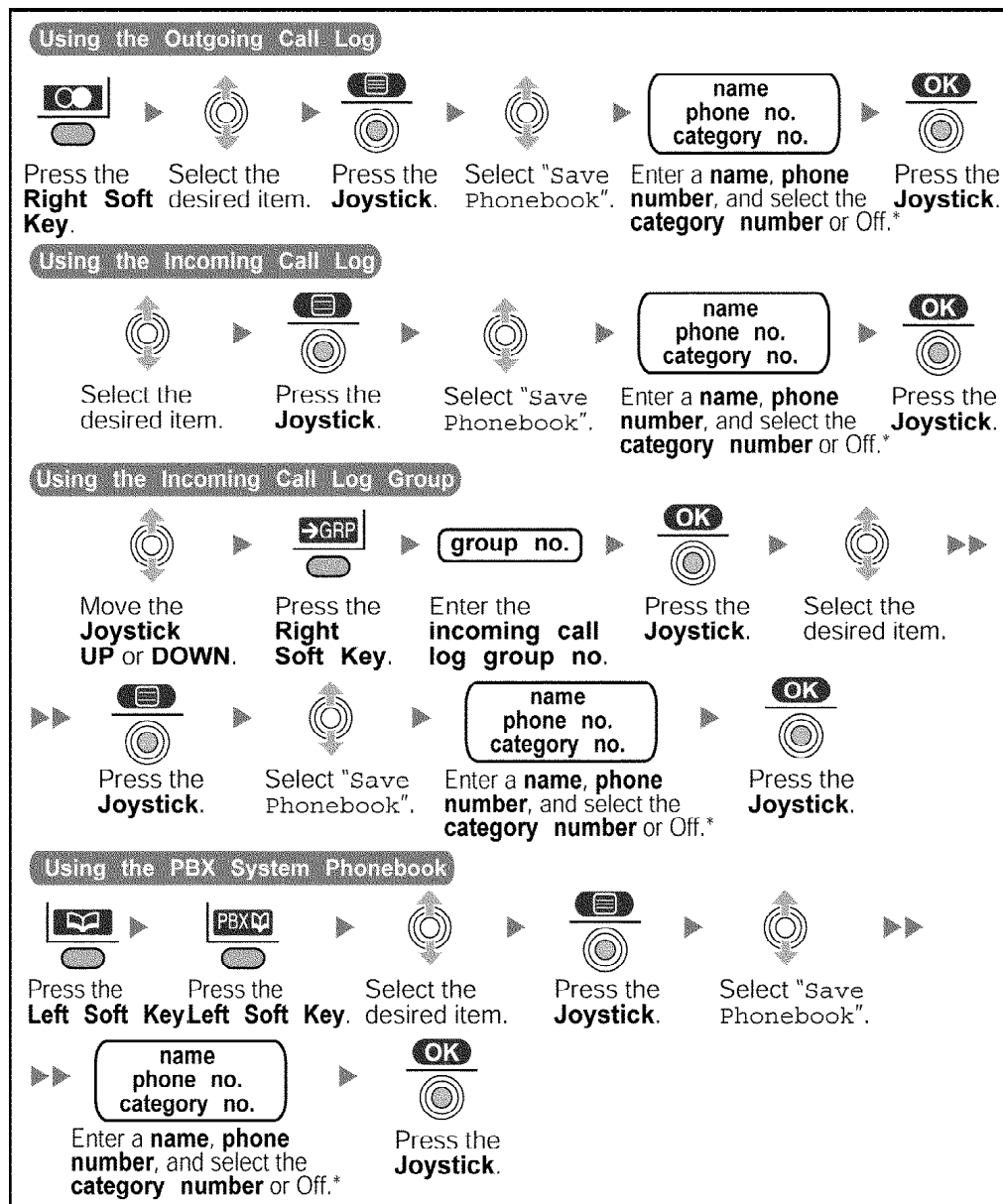
- To clear an entire line, press and hold **C**.

- To move the cursor to the left or right, press  or , respectively.

9.7. Deleting




9.8. Storing an item in the Handset Phonebook



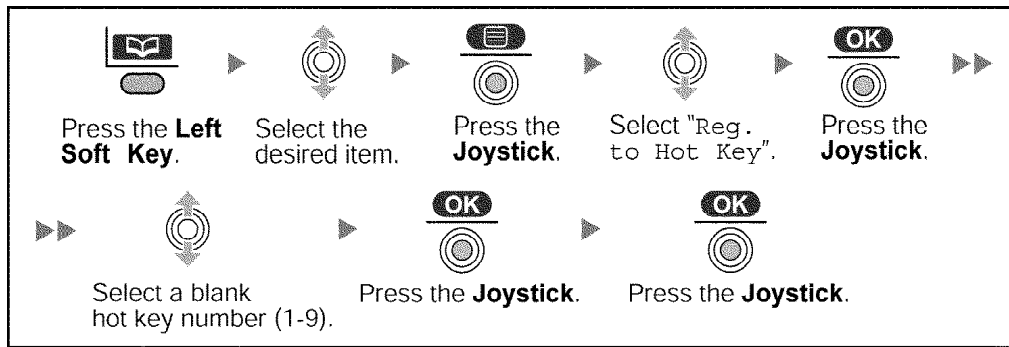
OK



- * Press  to confirm each entries.
- When storing an outside phone number, the line access number will be stored automatically. The line access number must be identical to the PS's "LineAccess CD" setting (Call Option).

9.9. Hot Key Dial

The phone numbers stored in the handset phonebook can be assigned as hot key.



10. DISASSEMBLY INSTRUCTIONS

10.1. Handset

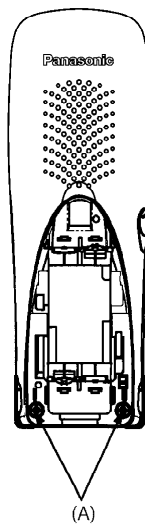


Fig.1

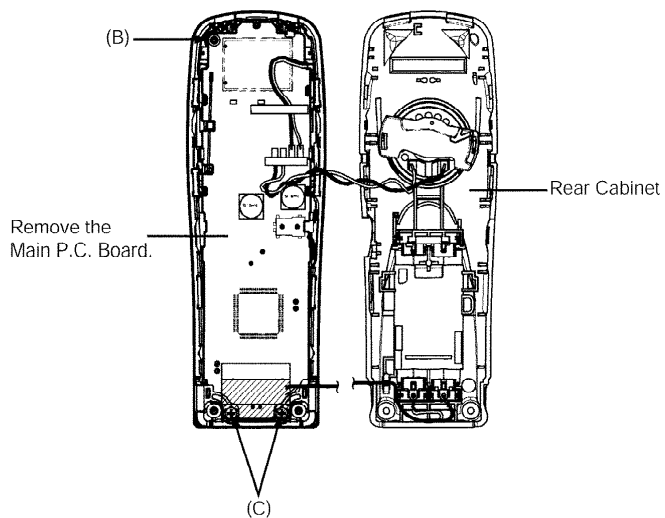
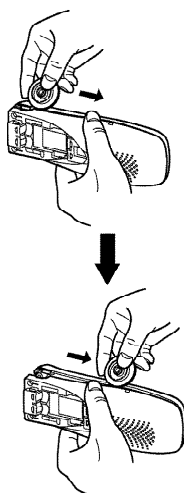
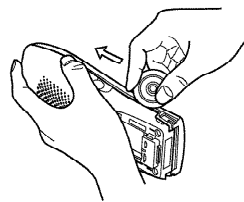


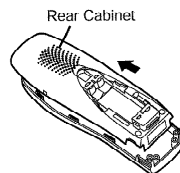
Fig.2



Insert a JIG (PODJ10006Y) between the Front and the Rear Cabinet, then pull it along the gap to open the Cabinet.



Likewise, open the other side of the Cabinet.



Remove the Rear Cabinet by pushing it upward.

Fig.3

Shown in Fig.-	To Remove	Remove
1	Rear Cabinet	Screws (2 × 10).....(A) × 2
2		Follow the procedure.
3	Main P.C. Board	Screw (2 × 8).....(B) × 1
		Screws (2 × 8).....(C) × 2
		Main P.C. Board

10.2. Charger Unit

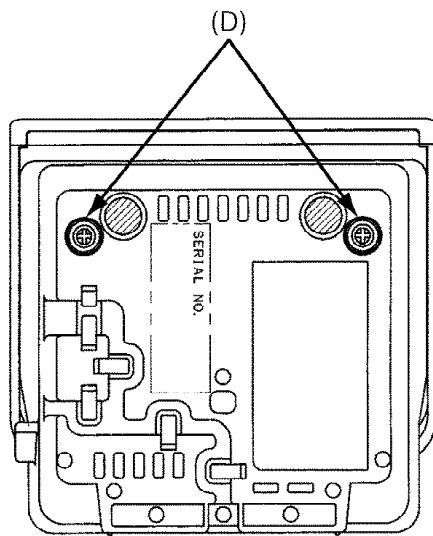


Fig. 4

Remove the Main P.C. Board.

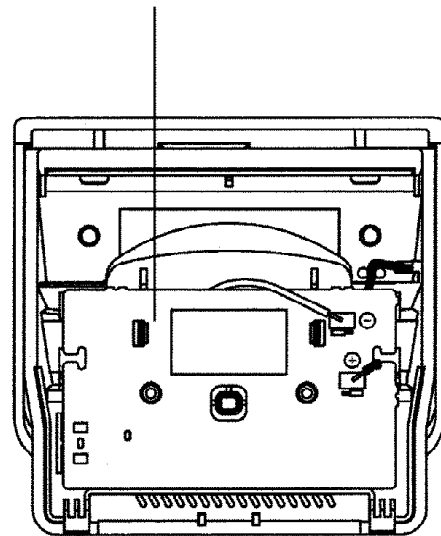
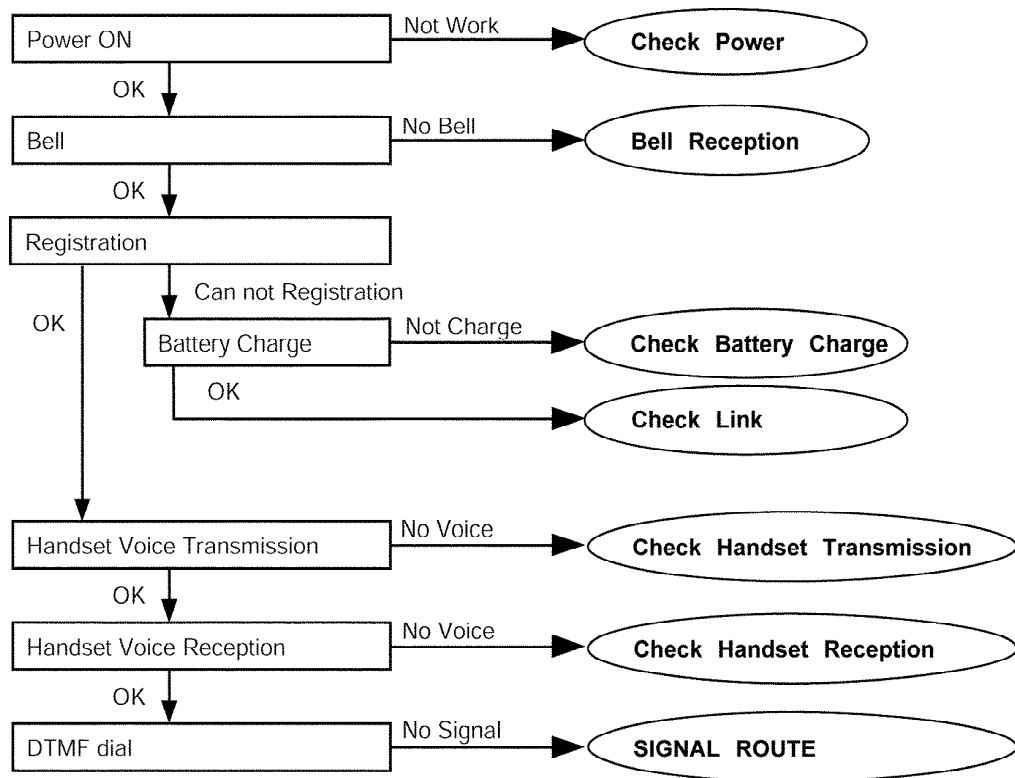


Fig. 5

Shown in Fig.-	To Remove	Remove
4	Lower Cabinet	Screws (2.6 × 14).....(D) × 2
5	Main P.C. Board	Main P.C. Board

11. TROUBLESHOOTING GUIDE

Flow Chart



Cross Reference:

[Check Power \(\)](#)

[Bell Reception \(\)](#)

[Check Battery Charge \(\)](#)

[Check Link \(\)](#)

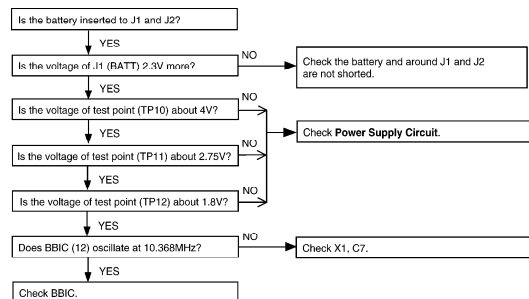
[Check Handset Transmission \(\)](#)

[Check Handset Reception \(\)](#)

[SIGNAL ROUTE \(\)](#)

11.1. Check Power

11.1.1. Handset



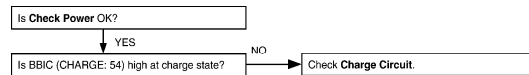
Cross Reference

[Power Supply Circuit/Reset Circuit \(\)](#)

Note:
BBIC is IC1.

11.2. Check Battery Charge

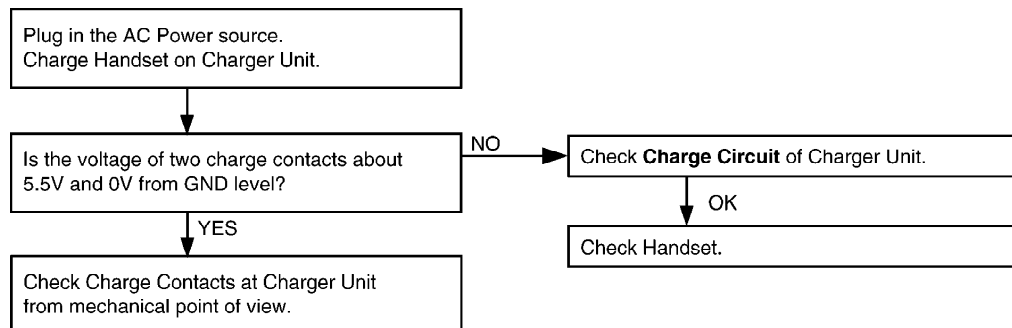
11.2.1. Handset



Cross Reference:
[Check Power \(\)](#)
[Charge Circuit \(\)](#)

Note:
BBIC is IC1.

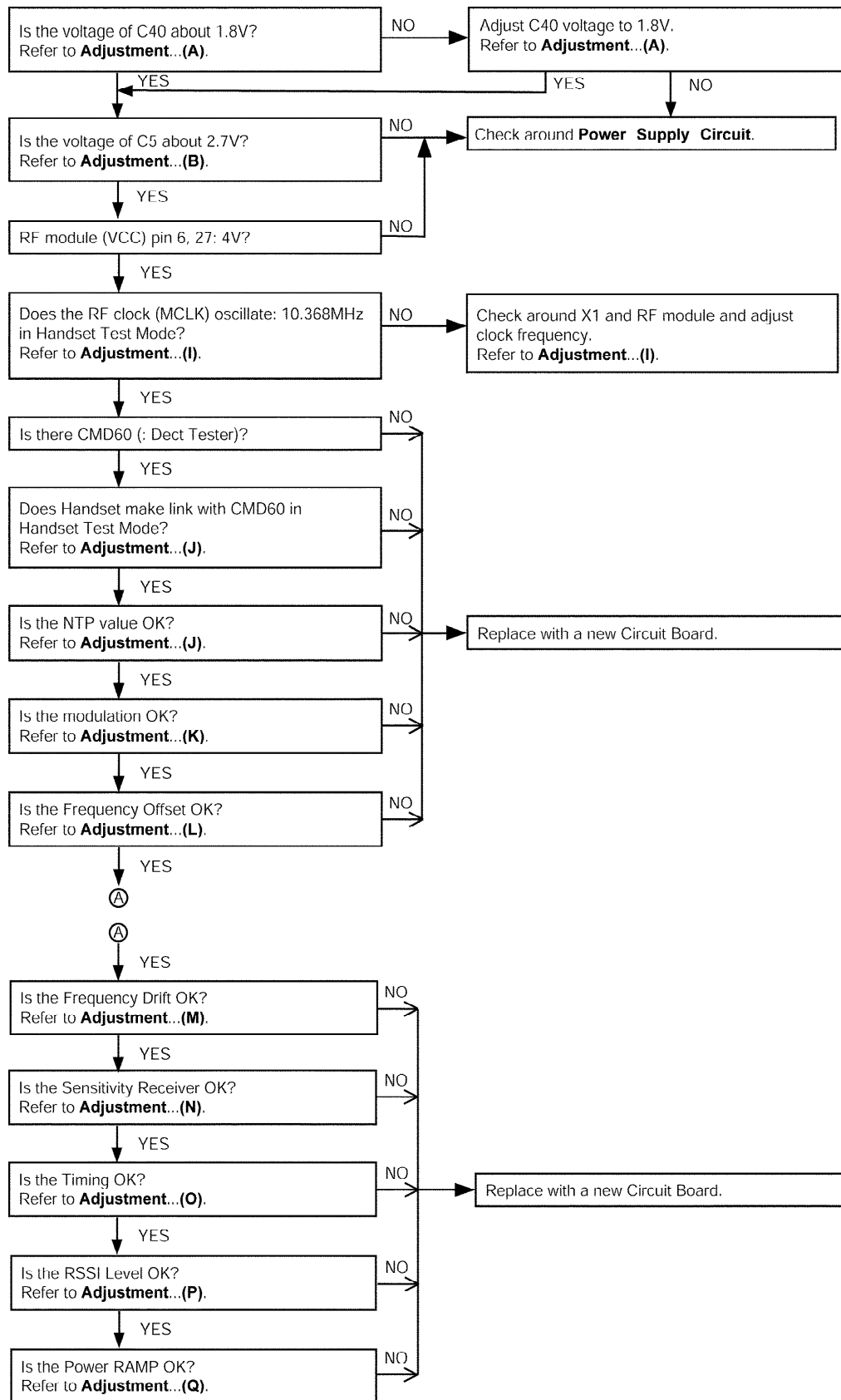
11.2.2. Charger Unit



Cross Reference:
[Charge Circuit \(\)](#)

11.3. Check Link

11.3.1. Handset



Cross Reference

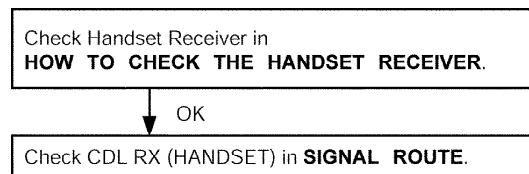
[Power Supply Circuit/Reset Circuit \(\)](#)
[Adjustment \(Handset\) \(\)](#)

11.4. Check Handset Transmission



Cross Reference:
[SIGNAL ROUTE \(\)](#)

11.5. Check Handset Reception



Cross Reference:
[HOW TO CHECK THE HANDSET RECEIVER \(\)](#).
[SIGNAL ROUTE \(\)](#)

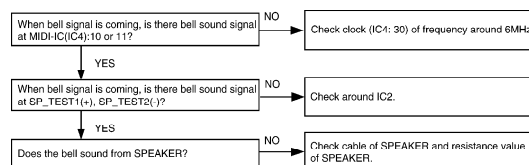
11.6. Check Caller ID



Cross Reference:
[SIGNAL ROUTE \(\)](#)

11.7. Bell Reception

11.7.1. Handset



Cross Reference:
[Check Link \(\)](#)
[HOW TO CHECK THE HANDSET SPEAKER \(\)](#)

Note:
BBIC is IC1.

12. CHECK PROCEDURE (HANDSET)

12.1. Preparation

12.1.1. Equipment Required

- DECT tester: Rohde & Schwarz, CMD 60 is recommended.
- Frequency counter: it must be precise to be able to measure 1Hz (precision; $\pm 4\text{ppm}$).
Hewlett Packard, 53131A is recommended.
- DC power: it must be able to output at least 1A current under 2.4V for Handset, 9V for JIG.
- Digital multi-meter (DMM): it must be able to measure voltage and current.
- Oscilloscope

12.1.2. JIG and PC

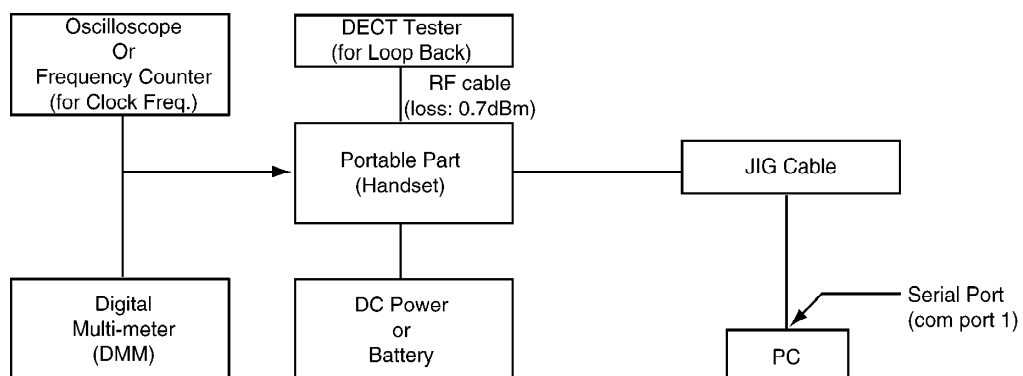
- EEPROM serial JIG

JIG : PSZZ1CA155EU, PSZZ2CA155EU

- PC which runs in DOS mode.

12.2. PC Setting

12.2.1. Connections



12.2.2. PC Setting

1. Open a window of MS-DOS mode from the start-up menu.
2. Change a directory.
3. Type "SET_COM 1" from the keyboard (when COM port 1 is used)

for the connection).

4. Type “doskey”.

Note:

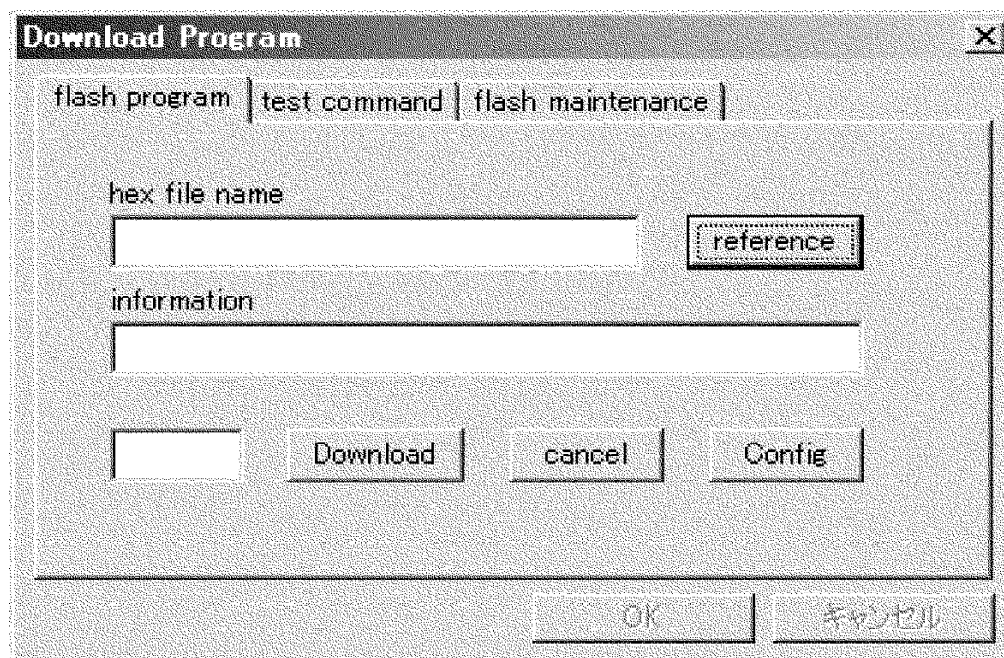
See the table below for frequently used commands.

Command name	Function	Example
rdeeprom	Read the data of EEPROM	Type “rdeeprom 00 00 FF”, and the data from address “00 00” to “FF” is read out.
readid	Read ID (RFPI)	Type “readid”, and the registered ID is read out.
writeid	Write ID (RFPI)	Type “writeid 00 18 E0 0E 98”, and the ID “0018 E0 0E 98” is written.
setfreq	adjust Frequency of RFIC	Type “setfreq nn”.
Getchk	Read checksum	Type “getchk”.
Wreeprom	write eeprom	Type "wreeprom 01 23 45". "01 23" is address and "45" is data to be written.

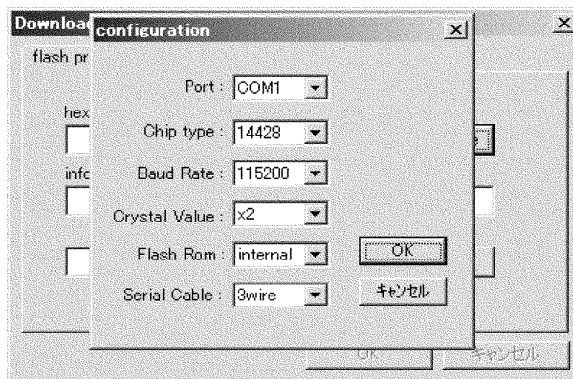
12.3. Download Manual

12.3.1. Step [1] Before Downloading (Configuration Setting)

[1]-(1) Execute “Flash Program. exe”



12.3.2. [1]-(2) Press Config



Select following desired item.

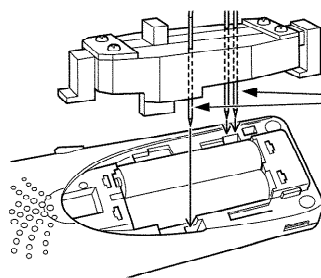
[Port]	select com1/com2/com3/com4
[Chip Type]	select "14428" only
[Baud Rate]	select "115200"
[Crystal Type]	select "x2"
[Flash Rom]	select "Internal" only
[Serial Cable]	select "3wire" only

[1]-(3) Press OK

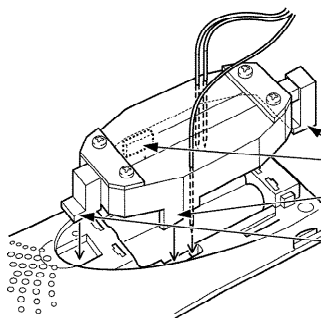
Selected item will be stored

Connect the down road jig cable with selected com port (com1 or com2 or ocm3 or com4)

12.3.3. Step [2] Attach download Jig



[2]-1
Push down the JIG while aligning the position of pins to the holes of the cabinet.
(both sides)

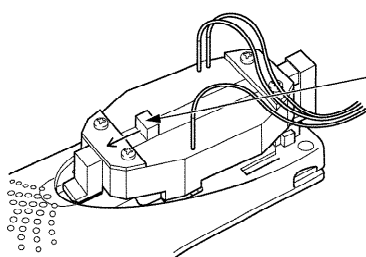


[2]-2
Also align the Fixing hook and Positioning ribs (both sides) to the recesses of the cabinet.

Positioning ribs

Fixing hook

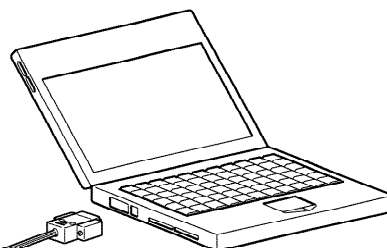
Make sure the pins are inserted properly to the holes, otherwise the pins get damaged.



[2]-3
Slide the knob of the hook to forward to fix the jig

Knob

PSZZ2CA155EU
(PC Cable)



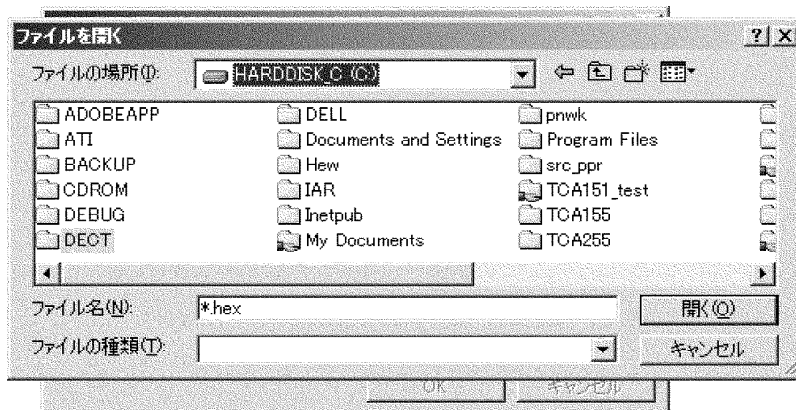
[2]-4
Completed

PSZZ1CA155EU
(Handset Jig)

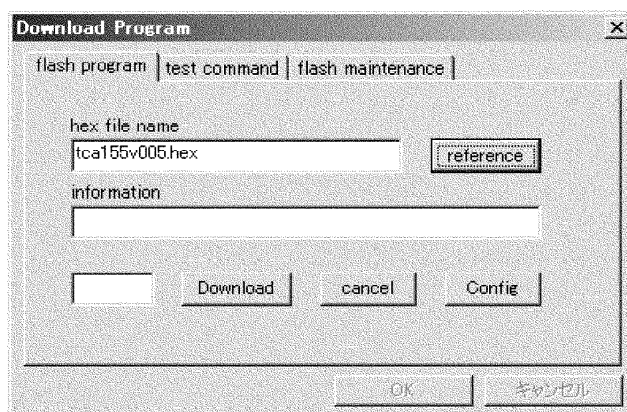
12.3.4. Step [3] Select Download file

3]-[1) Download Program Main Menu

Push "Reference" to select the download file. (Download Filename tca155vXXX.hex) XXX= Version Name



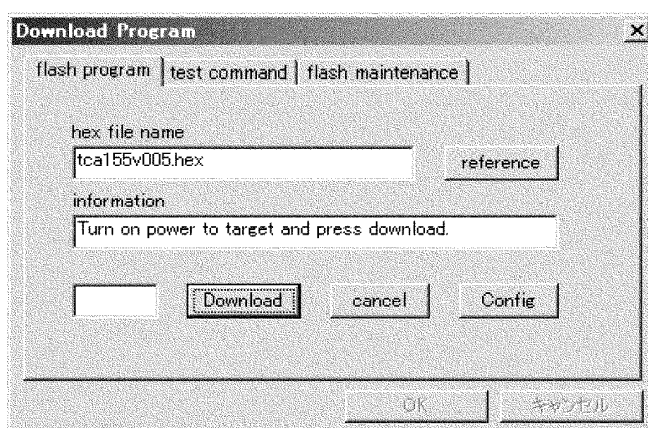
↓
select file



Display shows selected file name

12.3.5. Step [4] Download Start

[4]-(1) Click "download" key



Display turn to ready to download

[4]-2 Turn the power of target (TCA155) to [OFF]

(Keep pressing "OFF" key while 2 seconds)

Keep pressing "OFF" key until step [4]-6

This operation will not turn the power of target to on.

If target power turns on, check following item. Then try again from step [1]-(1)

(A) Check serial jig cable connection "PC" with "TCA155".

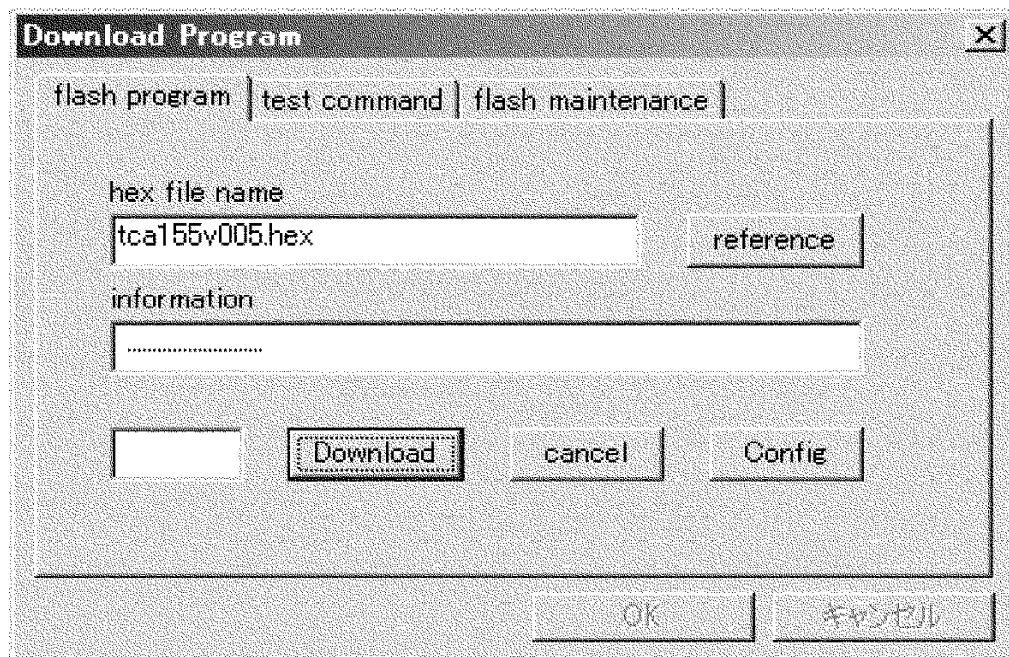
(B) Check Configuration (Refet to Step [1]-(4))

(C) Check Jig attachment of target

[4]-(4) Click “Downliad”

Communicating PC with Targer.

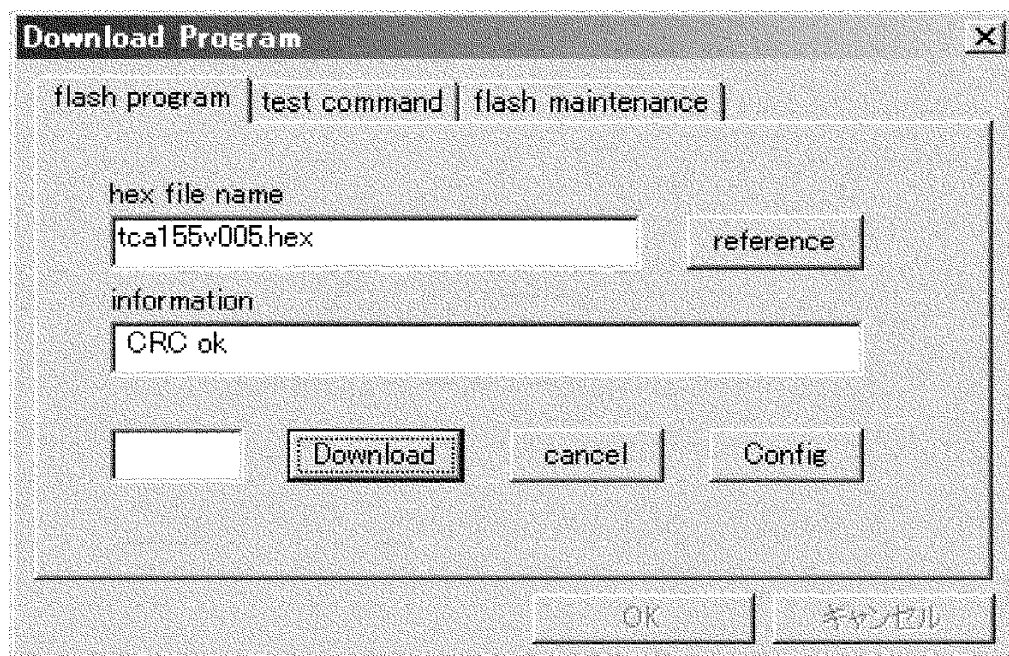
Don't release the “OFF” key in this step. If release the “OFF key, downloading will be failed.



[4]-(5) Communication check “OK”

If communication check become “OK”, Display will show “CRC OK”

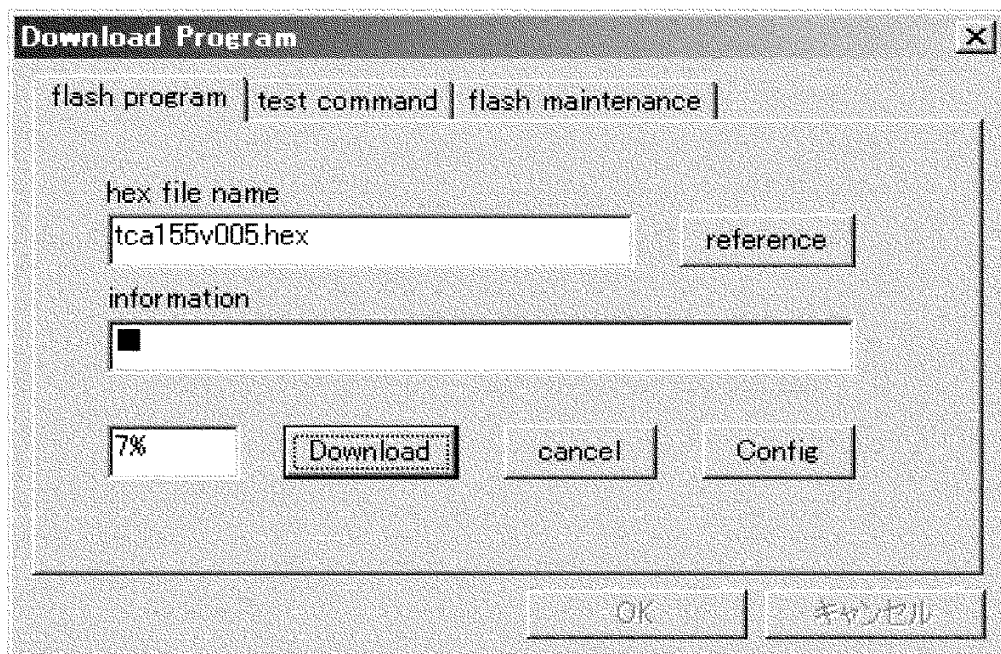
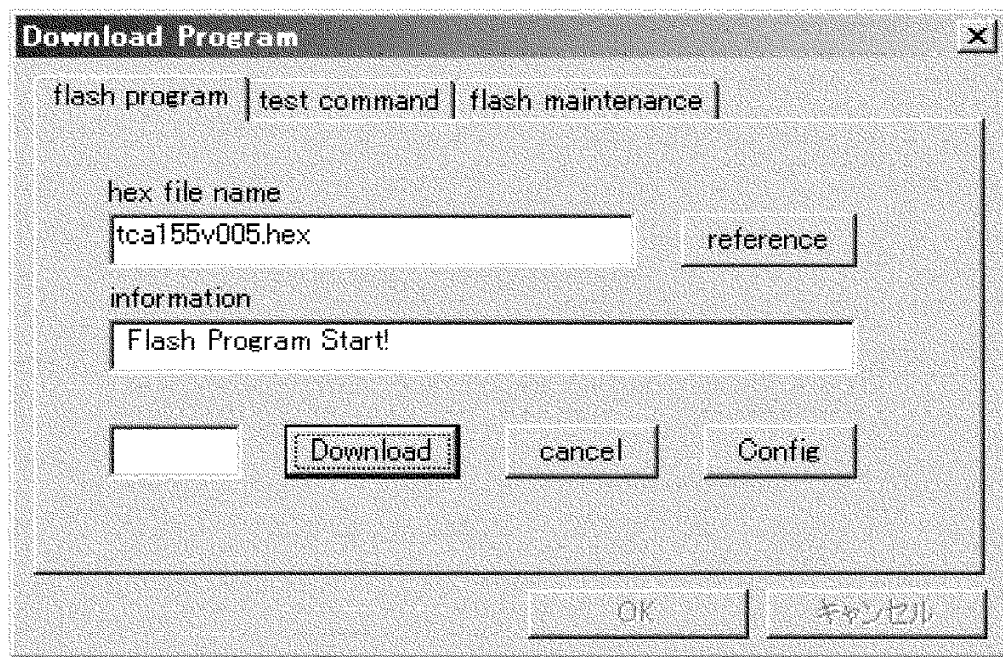
If communication NG, check step [4]-(3), then try download again.



[4]-(6) Downloading Start

After several seconds, Dsilaplay shows “Flash Program Start”.

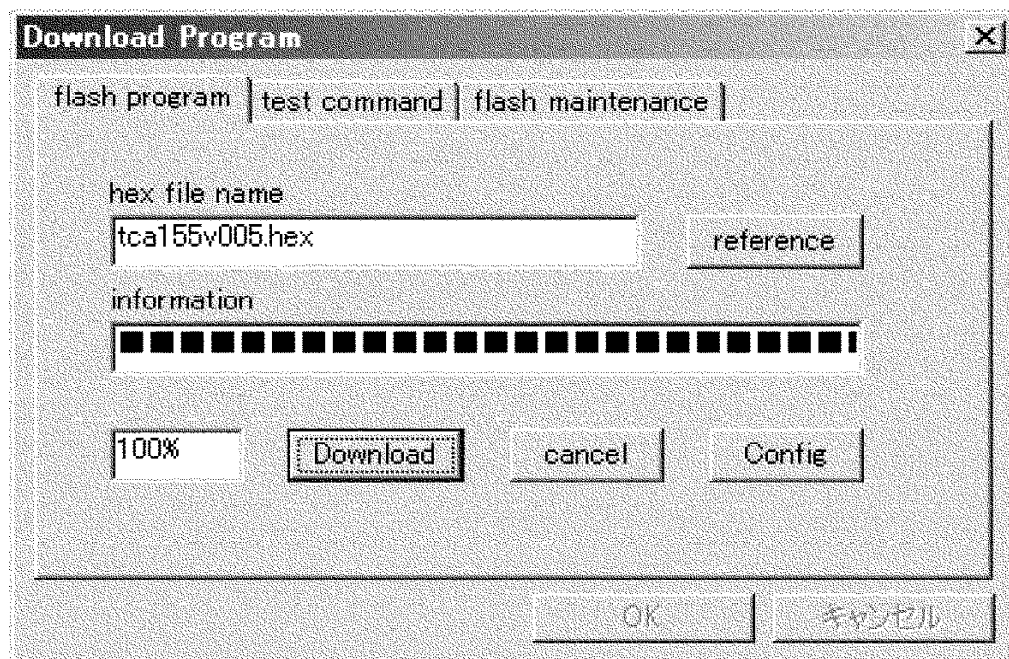
You can release the “OFF” key in this step



[4]-(7) Downloading Complete

If downloading finished, display shows "Download finished successfully!"

Click "off" then disconnect the serial jig cable.



13. ADJUSTMENTS (HANDSET AND CHARGER UNIT)

13.1. Adjustment (Handset)

	Items	Adjustment Point	Procedure*
(A) *	1.8V Supply Confirmation	TP12	1. Confirm that the voltage between test point "TP12" and GND is $1.8V \pm 0.02V$. 2. Adjust the 1.8V voltage of TP12 executing command "bandgap XX" (XX is the value).
(B)	4.0V Supply Confirmation	-	1. Confirm that the voltage between "TP10" and GND is $3.85V \pm 0.2V$.
(C)	2.7V Supply Confirmation	-	1. Confirm that the voltage between "TP11" and GND is $2.7V \pm 0.1V$.

	Items	Adjustment Point	Procedure*							
(D) *	BBIC Confirmation	-	<p>1. BBIC Confirmation (Execute the command "getchk").</p> <p>2. Confirm the returned checksum value.</p> <p>Connection of checksum value and program number is shown below.</p> <table><tr><td rowspan="3">ex.)</td><td>checksum value</td><td>program number</td></tr><tr><td>4F9D</td><td>D312ZA</td></tr><tr><td>5E0B</td><td>D312ZB</td></tr></table>	ex.)	checksum value	program number	4F9D	D312ZA	5E0B	D312ZB
ex.)	checksum value	program number								
	4F9D	D312ZA								
	5E0B	D312ZB								
(E)	Charge Control Check & Charge Current Monitor Confirmation	-	<p>1. Apply 6V between J3(+) and J4(-) with current limit of PSU to 200mA.</p> <p>2. Confirm that the charge current is ON/OFF.</p> <p>3. SW to decrease current limit of PSU to 100mA.</p> <p>4. Confirm that the charge current is stable.</p>							
(F) *	Charge Detection (OFF) Confirmation	-	<p>1. Stop supplying 6V to J3(+) and J4(-).</p> <p>2. Execute the command "charge".</p> <p>3. Confirm that the returned value is 0x01 (hex).</p>							
(G) *	Battery Monitor Confirmation	-	<p>1. Apply 2.3V ± 0.005V between BATT(+) and BATT(-).</p> <p>2. Execute the command "Backloff", then "readbatt".</p> <p>3. Confirm:</p> <p>$29 \leq \text{returned value} \leq 36$ (Hex)</p> <p>4. Adjust the Battery Monitor executing command "wreeprom 00 01 01 XX", then "wreeprom 00 36 01 XX-0E" (XX is the value).</p>							
(H)	Battery low Confirmation	-	<p>1. Apply 2.40V between BATT(+) and BATT(-).</p> <p>2. Confirm that there is no flashing of Battery Icon.</p> <p>3. Apply 2.20V between BATT(+) and BATT(-).</p> <p>4. Confirm that there is flashing of Battery.</p>							

	Items	Adjustment Point	Procedure*
(I)*	BBIC Clock Adjustment	CLK	<ol style="list-style-type: none"> 1. Execute the command "conttx". 2. Adjust the frequency of CLK executing the command "setfreq xx (where xx is the value)" so that the reading of the frequency counter is 10.368000MHz \pm 10Hz.
(J)*	Transmitted Power Confirmation	-	<p>Remove the Antenna before starting step from 1 to 4.</p> <ol style="list-style-type: none"> 1. Configure the DECT tester (CMD60) as follows; <Setting> -Test mode: PP -RFPI: 0102030408 -Traffic Carrier: 5 -Traffic Slot: 4 -Mode: Loopback -RF LEVEL = -70dBm 2. Execute the command "regcmd60 01 02 03 04 08". 3. Initiate connection from DECT tester. 4. Confirm that the NTP value at A201 (TP15) is 20dBm ~ 25dBm.
(K)*	Modulatoin Check and Adjusment	-	<p>Follow steps 1 to 3 of (J) above.</p> <ol style="list-style-type: none"> 4. Confirm that the B-Field Modulation is 360kHz/div ~ 380kHz/div using data type Fig 31. 5. Adjust the B-Field Modulation if required. (Execute the command "Readmod" and "wrtmod xx", where xx is the value.

	Items	Adjustment Point	Procedure*
(L)	Frequency Offset Confirmation	-	<p>Follow steps 1 to 3 of (J) above.</p> <p>4. Confirm that the frequency Offset is $< \pm 45\text{kHz}$.</p>
(M)	Frequency Drift Confirmation	-	<p>Follow steps 1 to 3 of (J) above.</p> <p>4. Confirm that the frequency Drift is $< \pm 30\text{kHz/ms}$.</p>

	Items	Adjustment Point	Procedure*
(N)	Sensitivity Receiver Confirmation	-	<p>Follow steps 1 to 3 of (J) above.</p> <p>4.Set DECT tester power to -88dBm.</p> <p>5.Confirm that the BER is < 1000ppm.</p>
(O)	Timing Confirmation	-	<p>Follow steps 1 to 3 of (J) above.</p> <p>4.Confirm that the Timing accuracy is < ± 0.5ppm.</p>

	Items	Adjustment Point	Procedure*
(P) *	RSSI Level Confirmation	-	<p>Follow steps 1 to 3 of (J) above.</p> <p>4.Set DECT tester power to -81dBm. 5.Execute the command “readrssi”. 6.Confirm that the returned value is $0 \times 11 \pm 8$ (hex). 7.Set DECT tester power to -63dBm. 8.Execute the command “readrssi”. 9.Confirm that the returned value is $0 \times 1E \pm 8$ (hex).</p>
(Q)	Power RAMP Confirmation	-	<p>Follow steps 1 to 3 of (J) above.</p> <p>4.Confirm that Power RAMP is matching.</p>

	Items	Adjustment Point	Procedure*
(R)	Audio Check and confirmation	-	<ol style="list-style-type: none"> 1. Link to standard BASE which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Input -45dBm/1KHz to MIC and measure Line output level. 4. Confirm that the level is reference sample $\pm 1.5\text{dBm}$ and confirm that the distortion level is $< 5\%$. 5. Input -20dBm/1KHz to Line I/F and measure Receiving level at REV1 and REV2. 6. Confirm that the level is reference sample $\pm 1.5\text{dBm}$ and confirm that the distortion level is $< 5\%$.

	Items	Adjustment Point	Procedure*
(S)	SP phone Audio check and confirmation	-	<ol style="list-style-type: none"> 1. Link to standard Base which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Set the handset off-hook using SP-Phone key. 4. Input -45dBm/1KHz to MIC and measure Line output level. 5. Confirm that the level is reference sample $\pm 1.5\text{dBm}$ and confirm that the distortion level is $< 5\%$. 6. Input -20dBm/1KHz to Line I/F and measure Receiving level at SP1 and SP2. 7. Confirm that the level is reference sample $\pm 1.5\text{dBm}$ and confirm that the distortion level is $< 5\%$.
(T)	Headset Audio check and confirmation	-	<ol style="list-style-type: none"> 1. Link to standard BASE which is connected to Line Simulator. 2. Set line voltage to 48V and line current to 40mA. 3. Input -45dBm/1kHz across Mic terminals on headset cable. 4. Confirm that the level is reference sample $\pm 1.5\text{dBm}$ and confirm that the distortion level is $< 5\%$. 5. Input -20dBm/1kHz to Line I/F. 6. Confirm that the level is reference sample $\pm 1.5\text{dBm}$ and confirm that the distortion level is $< 5\%$. <p>(SP terminals on headset cable is load of 150 ohm)</p>
(U) *	EEP-ROM confirmation	-	<ol style="list-style-type: none"> 1. EEP-ROM Confirmation (Execute the command "chk151ERV05.bat") 2. confirm the returned check sum Value (check sum is 3FFA)
(V)	RSSI Calibration Confirmation	-	<ol style="list-style-type: none"> 1. Set DECT Tester Power to -81dbm. 2. Run "ReadRSSI" and record the returned value. 3. Run "eeprom write" and write the returned value. WrEeprom 00 50 1 XX RdEeprom 00 50 1 4. Set DECT Tester Power to -63dbm. 5. Run "ReadRSSI" and record the returned value. 6. Run "eeprom write" and write the returned value. WrEeprom 00 51 1 XX RdEeprom 00 51 1

13.2. Adjustment Standard (Handset)

When connecting the Simulator Equipments for checking, please refer to below.

13.3. Adjustment (Charger Unit)

	Items	Adjustment Point	Procedure
(A)	Charging Check	-	1. Connect Charge Contact 12 Ω /2W register between charge+ and charge-. 2. Measure and confirm voltage across the register is $2.7V \pm 0.2V$.

Note:

After the measuring, sock up the solder of TP.

13.4. Adjustment Standard (Charger Unit)

When connecting the Simulator Equipments for checking, please refer to below.

13.4.1. Flow Solder Side View

14. RF SPECIFICATION

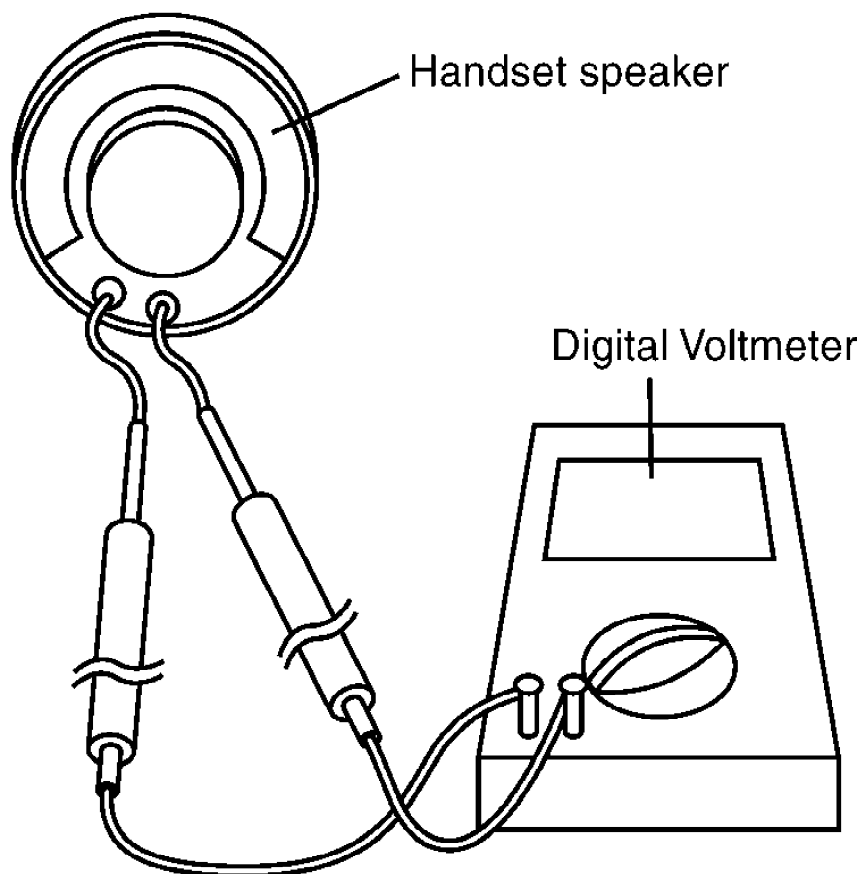
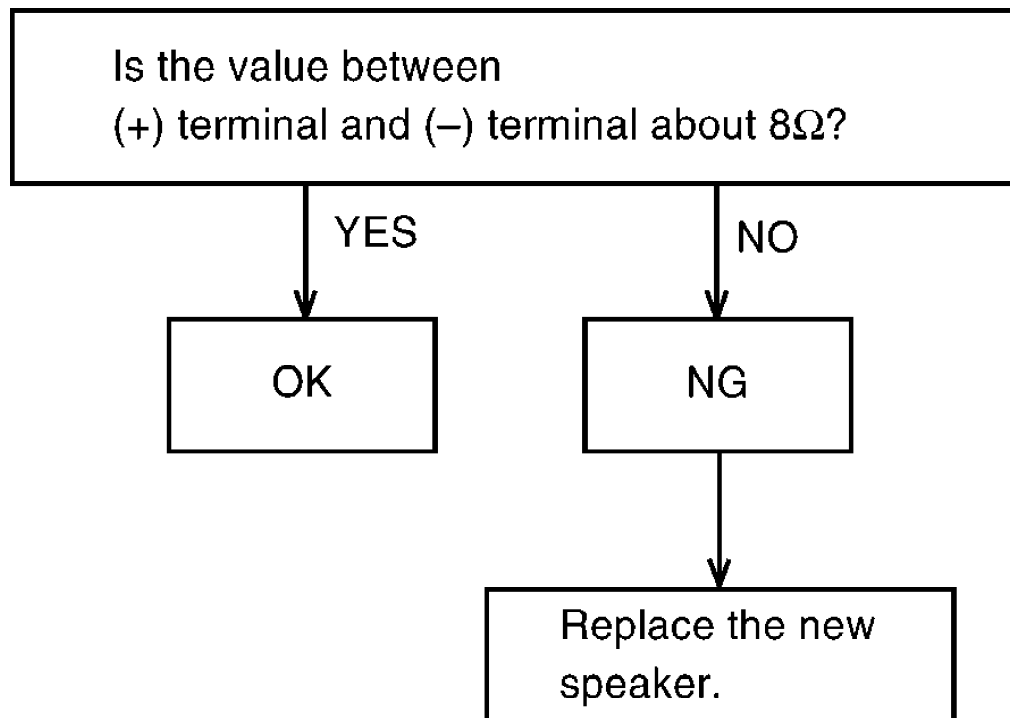
14.1. Handset

Item	Value	Refer to -. **	Remar
TX Power	20 dBm ~ 25 dBm	Adjustment (Handset) (J)	
Modulation	360 kHz/div ~ 380 kHz/div	Adjustment (Handset) (K)	Data type:
Frequency Offset	-45 kHz ~ +45 kHz	Adjustment (Handset) (L)	
Frequency Drift	< ± 30 kHz / ms	Adjustment (Handset) (M)	
RX Sensitivity	< 1000 ppm	Adjustment (Handset) (N)	
Timing Accuracy	< ± 0.5 ppm	Adjustment (Handset) (O)	
RSSI Level	0x11 hex ± 8 hex (at -81dBm) 0x1E hex ± 8 hex (at -63dBm)	Adjustment (Handset) (P)	
Power RAMP	Power RAMP is matching	Adjustment (Handset) (Q)	

** : Refer to [Adjustment \(Handset\) \(\)](#)

15. HOW TO CHECK THE HANDSET SPEAKER

- 1. Prepare the digital voltmeter, and set the selector knob to ohm meter.**
- 2. Put the probes at the speaker terminals as shown below.**

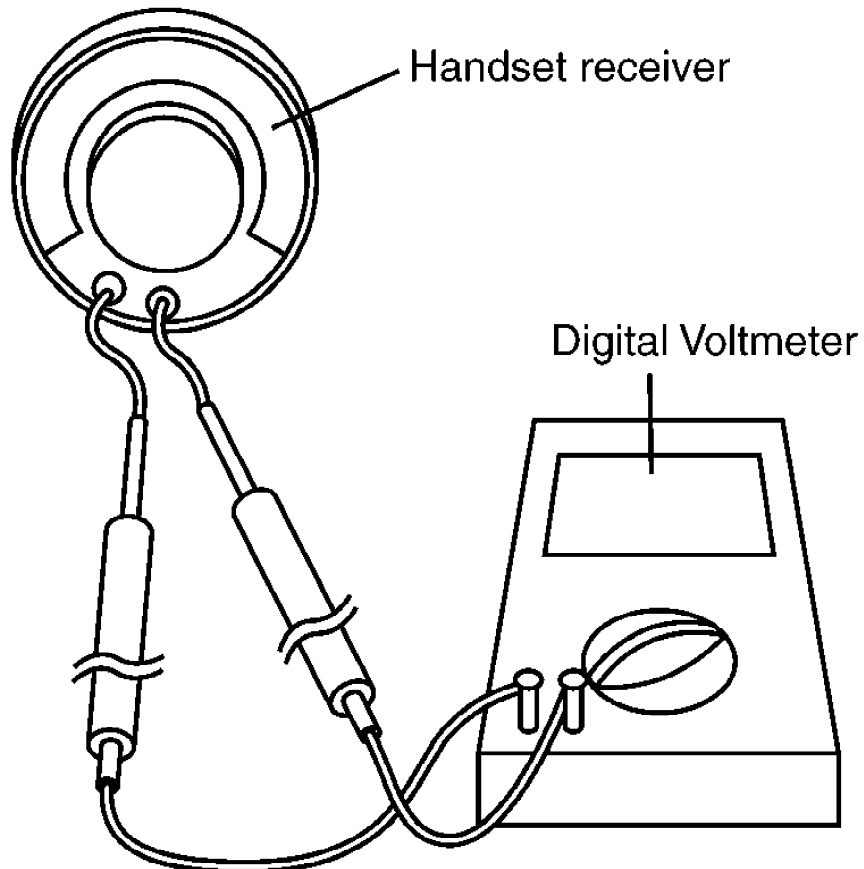
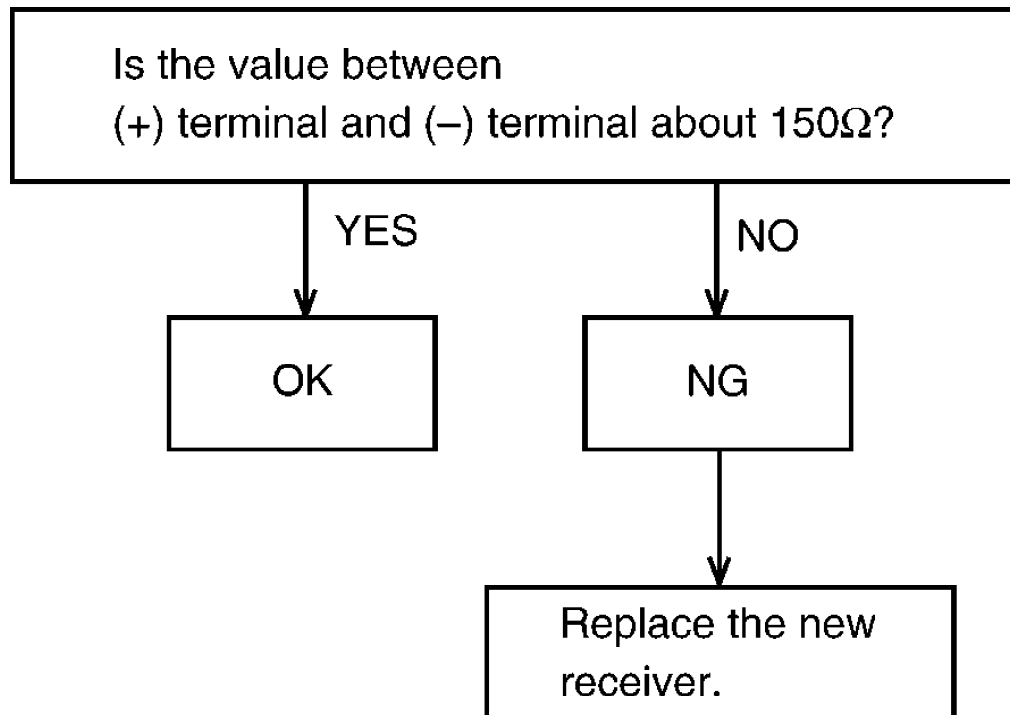


16. HOW TO CHECK THE HANDSET RECEIVER

1. Prepare the digital voltmeter, and set the selector knob to ohm

meter.

2. Put the probes at the receiver terminals as shown below.



17. FREQUENCY TABLE (MHz)

Channel No	HANDSET	
	Transmit Frequency	Receive Frequency
1	1897.344	1897.344
2	1895.616	1895.616
3	1893.888	1893.888
4	1892.160	1892.160
5	1890.432	1890.432
6	1888.704	1888.704
7	1886.976	1886.976
8	1885.248	1885.248
9	1883.520	1883.520
10	1881.792	1881.792

Note:

Channel No. 10: In the Test Mode on Handset.

18. BLOCK DIAGRAM (HANDSET)

19. CIRCUIT OPERATION (HANDSET)

19.1. Outline

Handset consists of the following ICs as shown in **BLOCK DIAGRAM (HANDSET)** ().

- DECT BBIC (Base Band IC): IC1
- All data signals (forming/analyzing ACK or CMD signal)
- All interfaces (ex: Key, Detector Circuit, Charge, DC/DC Converter, EEPROM, LCD)
- RF Module: IC3
- PLL Oscillator
- Detector
- Compress/Expander
- Amplifier for transmission and reception
- AMP: IC2
- Single OP_AMP for SP
- MIDI: IC4
- 16-Tone 32-Poly PCM Sound Generator
- Port (LED direct driver with PWM)
- EEPROM: IC10

- Temporary operating parameters (for RF, etc.)

19.2. Power Supply Circuit/Reset Circuit

Circuit Operation:

When power on the Handset, the voltage is as follows;

BATTERY(2.2 V ~ 2.6V: J1) → L1, D1, Q2 (1.8V) → Q3 (2.7V) → Q1 (4.0V)

The Reset signal generates IC1 (78) and 1.8V.

19.3. Charge Circuit

Circuit Operation:

When charging the handset on the Base Unit, the charge current is as follows;

DC+(5.5V ~ 6V) → D1 → R4, R5 → CHARGE+(Base) → CHARGE+(Handset) → L4 → Q4 → D7 → F1 → BATTERY+ ... Battery ... BATTERY- → R43 → GND → CHARGE-(Handset) → CHARGE-(Base) → GND → DC-(GND)

In this way, the BBIC on Handset detects the fact that the battery is charged.

The charge current is controlled by switching Q5 of Handset.

Refer to Fig.101 in [Power Supply Circuit](#) ().

19.4. Battery Low/Power Down Detector

Circuit Operation:

"Battery Low" and "Power Down" are detected by BBIC which check the voltage from battery.

The detected voltage is as follows;

- Battery Low

Battery voltage: $V(\text{Batt}) \leq 2.3V \pm 50\text{mV}$

The BBIC detects this level and " starts flashing.

- Power Down

Battery voltage: $V(\text{Batt}) \leq 2.2V \pm 50\text{mV}$

The BBIC detects this level and power down.

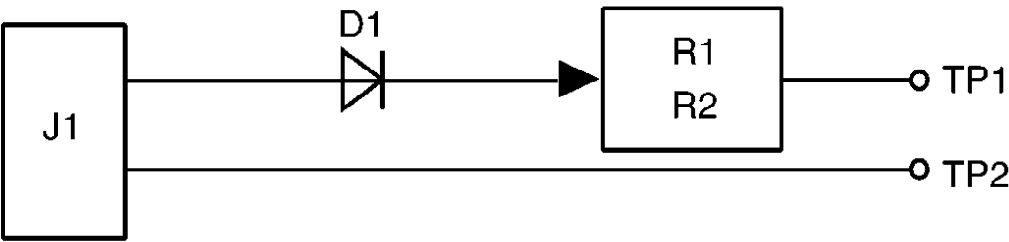
19.5. Speakerphone and Headset Jack

The hands-free loudspeaker at SP+ and SP- is used to generate the ring alarm. IC2 is used to switch off the telephone loudspeaker and is used to amplify the signal to drive the hands-free loudspeaker. They are selected using the SP_AMP line from pin 70 of the BBIC. 2.5mm headset jack is also available.

20. CIRCUIT OPERATION (CHARGER UNIT)

20.1. Power Supply Circuit

The power supply is as shown.



AC Adaptor

21. SIGNAL ROUTE

SIGNAL ROUTE	IN	SIGNAL ROUTE	OUT
CDL TX (to Tel Line)	(HANDSET) MIC - R37 - HEADSET JACK(3) - JACK(2)	C10 - R26 - IC1(76) - IC1(19) - R29 - R25 - IC1(77)	
CDL RX (from Tel Line)	(HANDSET) from BASE UNIT - ANTENNA - IC3(33) - IC3(20) - IC1(17)	IC1(68) - C42 - R75 - IC1(69) - to REV(+)	
SP-PHONE TX (to Tel Line)	(HANDSET) MIC - R37 - HEADSET JACK(3) - JACK(2)	C10 - R26 - IC1(76) - IC1(19) - R29 - R25 - IC1(77)	
SP-PHONE RX (from Tel Line)	(HANDSET) from BASE UNIT - ANTENNA - IC3(33) - IC3(20) - IC1(17) - IC1(70) - R80 - C13 - R35 - IC2(4) - IC2(5) - SP(+) IC2(8) - SP()		
HEADSET TX (to Tel Line)	(HANDSET) HEADSET(MIC) - HEADSET JACK(2)	C10 - R26 - IC1(76) - IC1(19) - R29 - R25 - IC1(77)	
HEADSET RX (from Tel Line)	(HANDSET) from BASE UNIT - ANTENNA - IC3(33) - IC3(20) - IC1(17) - IC1(68) - C42 - R75 - HEADSET JACK(5) - HEADSET		

22. CPU DATA (HANDSET)

22.1. IC1 (BBIC)

Pin No	Description	I/O	Connection	at Normal mode	at Rese
1	P3_7/PD7	D,O	LCD_A0	O	C
2	P3_1/PD1	D,O	RXDSG	O	C
3	P3_5/PD5	D,O	SPAMP CD	O	C
4	P3_4/PD4	D,I/O	MIDI_ERQ	I	C
5	P3_3/PD3	D,O	PAON	O	C
6	P3_2/PD2	D,O	PSEL	O	C
7	VDD	-	-	-	-
8	VSS	-	-	-	-
9	RFCLK	D,O	SYRI	O	C
10	VDDRF	-	-	-	-
11	VSSRF	-	-	-	-
12	Xtal1	A,I	←	I	C
13	CAP	A,I	←	I	C
14	AVS	-	-	-	-
15	AVD	-	-	-	-
16	RSSI	A,I	RSSI	I	C
17	RDI	D,I	RXDA	I	C
18	CMPREF	A,I	NC	OPEN	C
19	TDO	A,O	TXDA	A,O	C
20	LE	D,O	SYEN	D,O	C
21	SO	D,O	SYDA	D,O	C
22	SK	D,O	SYCL	D,O	C
23	DAC/ADC2	D,I	JACK DETECTION	I	C
24	P3_6/PD6	D,I/O	MIDI_SRQ	I	C
25	UTX/P0_0	D,O	UTX	O	C
26	URX/P0_1	D,I	URX	I	C
27	JTIO/P0_2	D,I	JTAG	I	C
28	PCM_FSC1/P0_3	D,I	COL1	I	C
29	PCM_FSC0/P0_4	D,I	COL2	I	C
30	PCM_CLK/P0_5	D,I	COL3	I	C
31	PCM_DOUT/P0_6	D,I	COL4	I	C
32	PCM_DIN/P0_7	D,I	COL5	I	C
33	VDDIO	-	-	-	-
34	VSS	-	-	-	-
35	INT0n/P1_0	D,O	ROW0	O	C
36	INT1n/P1_1	D,O	ROW1	O	C
37	INT2n/P1_2	D,O	ROW2	O	C
38	INT3n/P1_3	D,O	ROW3	O	C
39	INT4n/P1_4	D,I	MIDI_IRQ	I	C
40	VDDE/INT5n/P1_5	D,O	COL0	O	-
41	SCL2/P3_0	D,O	SCL	O	C
42	SDA2	D,I/O	SDA	I/O	C
43	VSS	-	-	-	-
44	VDD	-	-	-	-

Pin No	Description	I/O	Connection	at Normal mode	at Rese
45	P2_0/PWM0	D,O	PWM0	O	C
46	P2_1/PWM1	D,O	CS2	O	C
47	P2_2/ADC0	D,O	EX_RESET	O	C
48	P2_3/ADC1	D,O	MIDI-CS	O	C
49	P2_4/SCL1	D,O	LCD-SCLK MIDI_SCLK	O	C
50	P2_5/SDA1	D,O	LCD-SCLK MIDI_SCLK	O	C
51	P2_7/DC_CTRL	D,O	DC_CTRL	O	C
52	DC_I	A,I	←	I	C
53	P1_6/PON/INT6n	A,I	PON	I	C
54	P1_7/CHARGE/ INT7n	A,I	CHARGE	I	C
55	P2_6/stop_charge	A,O	STOP-CHARGE	O	C
56	VBAT3/RINGING	A,I	VBAT3	I	C
57	DC_stab	A,O	←	O	C
58	DC_Sense	A,I	←	I	C
59	AVS_sense	A,I	←	I	C
60	ADC3	A,I	←	I	C
61	LDO1_sense	A,I	←	I	C
62	LDO1_CTRL	A,O	←	O	C
63	LDO2_CTRL	A,O	←	O	C
64	VBAT2	A,I	←	I	C
65	VBAT1	A,I	←	I	C
66	AVS2	-	-	-	-
67	AVD2	-	-	-	-
68	LSR+/REF	A,O	LSR+	O	C
69	LSR-/REF	A,O	LSR-	O	C
70	LSR_HS/CIDIN-	A,O	LSR_HS	O	C
71	VREF_HS/CIDOUT	A,O	NC	OPEN	-
72	MIC-	A,I	←	I	C
73	VREF-	A,O	←	O	C
74	VBUF	A,O	←	O	C
75	AGND	A,O	←	O	C
76	MIC+	A,I	←	I	C
77	VREF+/CIDIN+	A,O	VREF+	O	C
78	RSTN	D,I	←	I	C
79	VDDIO	-	-	-	-
80	VSS	-	-	-	-

Note:

JACK DETECTION; Detect if a Headset is inserted into the JACK or not. Without a Headset, 1.5V is measured at pin 23, while with a Headset, 0V is measured at pin 23.

23. EEPROM LAYOUT (HANDSET)

23.1. Scope

The purpose of this section is to describe “layout of the EEPROM (IC10) KX-TCA155 Handset”. The EEPROM contains hardware, software, and user specific parameters. Some parameters are set during production of the handset e.g. crystal oscillator adjustment at 0057, some are set by the user when configuring the handset e.g. ringer volume at 00A1, and some during normal use of the phone e.g. redial memory at 1EF6..1F77.

23.2. Introduction

The handset uses a 64k bit serial EEPROM (IC10) for storing volatile parameters. All parameters are set up before the handset the factory. Some of these are vital for the operation of the hardware so a set of default parameters is programmed before the actual hardware fine-tuning can be initiated. This document lists all default settings with a short description.

This document lists all default parameters with a short description.

In the tables below values in a range that are similar are not repeated; i.e. Address 00 to 01 contains the value 00 simply means that the value 00 is repeated in all addresses in the range.

Initial Type	Description
F	The data initialized by only F command
0	The data initialized by F and 0 command
1	The data initialized by F, 0 and 1 command
2	The data initialized by all command (F,0,1,2)

Country Setting	Description
x	Default - no specific country setting, so revert to default value.

23.3. EEPROM contents

Note:

In some addresses in the lists below, at the item “Description”, setting time can be changed depending on Default Value.

When increasing this value, setting time can be either longer or shorter.

23.3.1. Data in RAM (80 bytes)

Address (0x0000 ~0x004F)	Initial Type	EEPROM Name	Description	Default value
0	F	EEP_LowVoltage	Number of ADC step for battery low (Not Used)	0x30
1	1	EEP_DspSdt2Level	DSP Parameter SideTone2 Main:SideTone2 Main route level MictoRcv:SideTone2 Mlc to Receiver level	0xFF, 0x7F, 0x00, 0x0C
5	1	EEP_DspToneLevel	DSP Parameter ToneLevel Talk:Tone Level in Talk mode Spp:Tone Level in Spp mode	0xFF, 0x7F, 0xFF, 0x7F
9	1	EEP_DspRxMuteLevel	DSP Parameter RxMute Level Talk:RxMute Level in Talk mode Spp:RxMute Level in Spp mode	0xFF, 0x7F, 0xFF, 0x7F
D	1	EEP_DspRcvVol	DSP Parameter Receiver Volume TX Level TxTalk:Receiver Volume Tx Level in Talk mode TxSpp:Receiver Volume Tx Level in Spp mode	0xFF, 0x7F, 0xFF, 0x7F

Address (0x0000 ~0x004F)	Initial Type	EEPROM Name	Description	Default value
11	1	EEP_DspHAGC	DSP Parameter HAGC ToSpAgcmax:HAGC To Sp Ag cmax ToSpAgcmin:HAGC To Sp Ag cmin ToSpAgcoffcntini:HAGC To Sp Ag coffcntini ToSpAgconcntini:HAGC To Sp Ag concntini ToSpAgcdip:HAGC To Sp Ag cdip ToSpAgctoff:HAGC To Sp Ag ctoff ToSpAgcton:HAGC To Sp Ag cton ToSpPfall:HAGC To Sp Pfall ToSpPrise:HAGC To Sp Prise ToMicAgcmax:HAGC To Mic Ag cmax ToMicAgcmin:HAGC To Mic Ag cmin ToMicAgcoffcntini:HAGC To Mic Ag coffcntini ToMicAgconcntini:HAGC To Mic Ag concntini ToMicAgcdip:HAGC To Mic Ag cdip ToMicAgctoff:HAGC To Mic Ag ctoff ToMicAgcton:HAGC To Mic Ag cton ToMicPfall:HAGC To Mic Pfall ToMicPrise:HAGC To Mic Prise	0xFF, 0x7F, 0x00, 0x20, 0x00, 0x00, 0x00, 0x00, 0x00, 0x20, 0xED, 0x00, 0x15, 0x7F, 0x78, 0x7F, 0x10, 0x7C, 0xFF 0x00, 0x20, 0x00, 0x00, 0x00, 0x00, 0x00, 0x20, 0xED, 0x00, 0x15, 0x7F, 0x78, 0x7F, 0x10, 0x7C,
35	1	EEP_HeadsetDetectVoltage	Headset Detetion Voltage Determines at whitch voltage below whitch the headset will be detected.	0x20
36	1	EEP_NoVoltage	Number of ADC step for batter empty	0x22
37	1	EEP_RingerCurrent	Ringer Current	0x7B
38	1	EEP_LEDCurrent	LED currents of lighted KEY & LCD backlight	0x8A
39	1	EEP_LcdContrast	LCD contrast	0x1E

Address (0x0000 ~0x004F)	Initial Type	EEPROM Name	Description	Default value
3A	1	EEP_Seiden	LCD static electric command output cycle Unit: 640 msec Defaults to 640 msec	0x01
3B	1	EEP_LcdWakeupCnt	Display Low Duty Wake up Count Unit: 640 msec Defaults to 90 sec	0x8D
3C	1	EEP_LedPwmValue	Setting value of PWM for LED bySpPhoneLed:SP-Phone byLcdBklgt:LCD Back-Light byKeyBklgt:KEY Back-Light	0x20, 0x70, 0x70
3F	1	EEP_AudioSPPowOnDly	Delay Time: AFE Mode Change - SpeakerPhone PowerOn (for DSP) Defaults to 10 msec	0x01
40	1	EEP_AudioToneOutDly	Delay Time: SpeakerPhone PowerOn - ToneStart (for DSP) Defaults to 60 msec	0x06
41	1	EEP_AudioSPPowOffDly	Delay Time: ToneStop - SpeakerPhone PowerOff (for DSP) Defaults to 300 msec	0x1E
42	1	EEP_AudioAfeModeStbyDly	Delay Time: SpeakerPhone PowerOff - AFE Mode Change (for DSP) Defaults to 10 msec	0x01
43	1	EEP_AudioSPPowOnDlyMIDI	Delay Time: SoundIC PowerOn - SpeakerPhone PowerOn (for MIDI) Defaults to 20 msec	0x02
44	1	EEP_AudioToneOutDlyMIDI	Delay Time: SpeakerPhone PowerOn - ToneStart (for MIDI) Defaults to 60 msec	0x06
45	1	EEP_AudioSPPowOffDlyMIDI	Delay Time: ToneStop - SpeakerPhone PowerOff (for MIDI) Defaults to 10 msec	0x01
46	1	EEP_AudioToneOutDlyPWM	Delay Time: SpeakerPhone PowerOn - ToneStart (for PWM) Defaults to 60 msec	0x06
47	1	EEP_AudioSPPowOffDlyPWM	Delay Time: ToneStop - SpeakerPhone PowerOff (for PWM) Defaults to 60 msec	0x0F

Address (0x0000 ~0x004F)	Initial Type	EEPROM Name	Description	Default value
48	1	EEP_Reset_Ctrl	Reset or Fatal control when software error. 00: Reset other than 00: Fatal stop	0xFF
49	1	EEP_BatteryCapacity	Bat. Capacity, The battery can be brought up to [mAh*100]	0x00, 0x00
4B	2	EEP_EEToneConfig	Tone Option Data Bit 0:Keytone on/off00 - 0000 = Off / 0001 = Tone1 On Bit 1:Keytone on/off01 - 0010= Tone2On/0011=Tone3On Bit 2:Keytone on/off02 - 0100= Tone4On/0101=Tone5On Bit 3:Keytone on/off03 - Reserve Bit 4:Call waiting on/off - 1/0 Bit 5:Range alarm on/off - 1/0 Bit 6:Battery low alarm on/off - 1/0	0x51
4C	2	EEP_UIConfig00	User Interface Configuration 00 Bit0:Direct call 1=on 0=off Bit1-2:StandbyDisplay 00=Off 01= TermID 10=PpName 11=FpNo Bit3:BatteryType 1=Ni-Cd 0=Ni-Mh Bit4:Call barring Bit5:Autio talk Bit6-7:11=Talk time 01=Talk cost 10 = Phone number	0xE4
4D	1	EEP_LcdContrst_offset	Bit 7- 4: LCD Contrast Plus Offset Bit 3- 0: LCD Contrast Minus Offset	0x57
4E	1	EEP_DspRcvVolMeet	DSP Parameter TX Level TX Level plus offset in meeting mode	0x01 0x30
4F	F	EEP_LowVoltage2	Number of ADC step for battery low	

23.3.2. Data Not in RAM (8112 Bytes)

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
50	F	EEP_RssiComp1	Offset to be subtracted from ADC-value. Measured RSSI at -81dBm (0-0x3f)	0x17
51	F	EEP_RssiComp2	Offset to be subtracted from ADC-value. Measured RSSI at -63dBm (0-0x3f)	0x24
52	F	EEP_Ipei	International Portable Part Equipment Identities. A concatenation of an EMC and a unique 20 bit Serial Number.	0x00, 0x00 0x00, 0x00 0x00
57	F	EEP_FreqTrim_L	Setting value of FREQ_TRIM_REG	0x75
58	F	EEP_BandGap	Setting value of BandGap REG	0x08
59	F	EEP_TxPowerCtrlOff	Tx Power Control OFF 0:Power Control ON / 1:Power Control OFF	0x00
5A	F	EEP_TxPowerCtrlRSSI	Tx Power Control RSSI Threshold (00-0x3F)	0x1F
5B	F	EEP_BmcInitialParameter	BMC internal Registers (RC0,RC1,RC2,RC3,RC4,RC5) See AN-D-045 5.4.1.1	0x11, 0x4F 0x12, 0xA0 0x9F, 0xC0
61	F	EEP_BatCtrlTalk	BAT_CTRL_REG value in Talk	0x4F, 0x00
63	F	EEP_BatCtrlLDC	BAT_CTRL_REG value in LDC mode	0x47, 0x00
65	F	EEP_BatCtrlStby	BAT_CTRL_REG value in Stand-by	0x47, 0x00
67	1	EEP_Reset_Reason	Reset reason 0x00 = No reset occurred / Other = Reset Reason	0x00
68	68	EEP_RangeWarningThresholdPBX	RSSI threshold for Range warning The times of continuous error for Range warning.	0x32
69	1	EEP_RangeWarningThresholdFER	FER (%) threshold for Range warning	0x32, 0x00
6B	1	EEP_LowQualityLevel	Signal quality level at which handover is initiated (CRC error count).	0x10
6C	1	EEP_InUse	Base Type (1 byte 2 kinds of data x 4) Park_InUse: Pbx_Type :	0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF
74	1	EEP_RxMuteSyncError	Continuous SYNC error times for the Rx Mute (0-0xFF>Error times)	0x0A

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
75	1	EEP_RxMuteCrcError	Continuous CRC error times for the Rx Mute (0-0xFF:Error times)	0x0A
76	1	EEP_RxMuteCrcErrorRsc	CRC error resource for the Rx Mute Bit6:A-CRC Error Bit5:Q1/Q2 Error Bit1:X-CRC Error Bit0:Z-CRC Error	0x43
77	1	EEP_LowDutyP1ClockDiv	Clock Div value for P1 active 0x04-0x08:Clock Div Value	0x04
78	1	EEP_Bat_PassWord	Initial pass word for BAT_CTRL_REG	0xAA
79	1	EEP_UIDebugCtl	UserIF Debug Flag Bit0:0-CSNO-Disp Program Disable 1:Eble Bit1-7:Reserved	0x00
7A	1	EEP_FlexibleKeyListDispTime	Flexible Key Display Time	0x05
7B	1	EEP_Mic_Current	MIC ON Current. Additional current in MIC power ON while receiving call. This value is available only while receiving a call	0x00
7C	1	EEP_Select_Trace	Select Trace Mode 0:Normal Mode NOT 0: Trace Mode using a PHS	0x00
7D	1	EEP_RxAtteSyncError	Attenuation parameter Sync Error	0x00
7E	1	EEP_RxAtteCrcError	Attenuation parameter Crc Error	0x00
7F	1	EEP_RxAtteCrcErrorRsc	Attenuation parameter Crc Error Rsc	0x43
80	1	EEP_RxErrorAtteLevel	Attenuation parameter Level	0x12
81	1	EEP_DspErrAtteUp	Attenuation parameter Up Level	0x04
82	1	EEP_FactoryLanguageSetting	Selected Language for LCD GERAM:0 ENGLISH:1 SPANISH:2 NORWEGIAN:3 FRENCH:4 ITALIAN:5 DENISH:6 DUTCH:7 SWEDISH:8 FINNISH:9 GREEK:10 TURKISH:11 HUNGARIAN:12 PORTUGUESE:13 RUSSIAN:14	0x01

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
83	1	EEP_Available_Language	Select Available Language 0:Disable 1:Enable	0xFF, 0xFF 0xFF
86	1	EEP_PrivateRinger_PreSet	Setting PrivateRinger PreSet Pattern	0x04
87	1	EEP_AutoRedialConfiguration	Auto Redial Configuration Bit 0: 0:Disable, 1:Enable Bit1-7: Reserved	0x01
88	1	EEP_AutoRedialRetryTimeout	Timeout between auto redial attempts. Unit: 1 second. Defaults to 40 seconds.	0x28
89	89	EEP_AutoRedialRetryCount	Timeout between auto redial attempts. Unit: 1 second. Defaults to 40 seconds.	0x0C
8A	1	EEP_AutoRedialBusyDetectTimeout	Timeout for busy tone detection after end of dial out. Unit: 1 second. Defaults to 30 seconds.	0x1E
8B	1	EEP_AlarmRingingTime	Alarm Ringing Time 0-255 sec default: 180sec	0xB4
8C	1	EEP_ChargeOnReset	Charge-On-Reset for LCD/MIDI 0bit : 0 (Enable) 1(Disable) 1-7bit : Reserved	0x01
8D	1	EEP_MenusEnabled	MenuActivate 0bit : 0 (BatteryMenu OFF) / 1 (BatteryMenu ON) 1-7bit : Reserved	0x01
8E	1	EEP_AudioRcvVol	Audio reciver volume Maximum Step of receive volume (TALK) 0~1.0 (0x00~0x7FFF) *1.0 = 0x7FFF Maximum Step of receive volume (SPP) 0~1.0 (0x00~0x7FFF) *1.0 = 0x7FFF Step rate of receive volume (TALK) 0~1.0 (0x00~0xFF) *1.0 = 0xFF Step rate of receive volume (SPP) 0~1.0 (0x00~0xFF) *1.0 = 0xFF	0xFF, 0x7F 0xFF, 0x7F 0x80, 0xEB

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
94	1	EEP_AudioKeyClickVol	Volume step for KeyClickTone (PWM) Range 00-22	0x02
95	1	EEP_AudioDspRingerVolStep	Volume step for DSPRinger	0xFF, 0x11 0xFF, 0x21 0xFF, 0x31 0xFF, 0x51 0xFF, 0x61 0xFF, 0x7
A1	1	EEP_AudioSicRingerVolStep	Volume step for SoundIC (ML2860) for NormalRinger and iMelodyRinger	xF5, 0xF4 0xF3, 0xF 0xF1, 0xF
A7	1	EEP_AudioSicMelodyVolStep	Volume step for SoundIC (ML2860) for MelodyRinger	0xF3, 0xF 0xF1, 0xF 0xF1, 0x0
AD	1	EEP_StbyCurrent	Average current consumption at Normal standby mode i.e. 20mA	0x1B
AE	1	EEP_TalkCurrent	Average current consumption at standby mode after Headset talkmode i.e. 70mA - MacCurrent	0x08
AF	1	EEP_UnlockCurrent	Unlock current compsumption	0x82
B0	1	EEP_MacCurrent	Current compsumtion when a MAC connection is established	0x3E
B1	1	EEP_UnRegistrateCurrent	Un-Registrate Current. It's different from Un-Lock_Current. i.e. 2mA * (10/6) = 03 (hex)	0x1B
B2	1	EEP_LowDutyCurrent	BBIC current under cradle with LowDuty state.	0x05
B3	1	EEP_SPPhone_Current_H	Power AMP & SP Phone LED current. Vol High. Additional current in talk by SP Phone at Volume High. i.e. 110mA - MacCurrent	0x14
B4	1	EEP_SPPhone_Current_M	Power AMP & SP Phone LED current. Vol Mid. Additional current in talk by SP Phone at Volume Mid. i.e. 105mA - MacCurrent	0x13

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
B5	1	EEP_SPPhone_Current_L	Power AMP & SP Phone LED current.Vol Low. Additional current in talk by SP Phone at Volume Low. i.e. 100mA -MacCurrent	0x12
B6	1	EEP_MaxCapacity_Nicd	Max. capacity. Ni-Cd the battery can be brought up to [mAh*60]	0x98, 0x3
B8	1	EEP_MaxCapacity_NiMH	Max. capacity. Ni-MH the battery can be brought up to [mAh*60]	0x10, 0xA
BA	1	EEP_Divide_Current_Quick	Divide Quick Charge Current for Counter calculation i.e. $0.108C \times 1200 / 1.5 \times (10/12) = 48$	0x3E
BB	1	EEP_Divide_Current_Normal	Divide Normal Charge Current for Counter calculation i.e. $0.100C \times 1200 / 1.5 \times (10/12) = 43$	0x43
BC	1	EEP_Charge_Rate	Total Charge based on Battery Capacity i.e. 120% = 78 (Hex)	0x78
BD	1	EEP_PowerMark	Power Mark AA or 00 = normal powerdown, 55= unauthorized powerdown.	0x55
BE	1	EEP_BatterySelection	Battery Selection count of illegal startup	0x05
BF	1	EEP_Actual_Current_QuickH	Actual Charge Current for Quick (Hi Cap) i.e. $0.17 \times 700 = 119$	0x77
C0	1	EEP_Actual_Current_QuickL	Actual Charge Current for Quick (Low Cap) i.e. $0.17 \times 250 = 42$	0x4B
C1	1	EEP_Actual_Current_NormalH	Actual Charge Current for Normal (Hi Cap) i.e. $0.1 \times 700 = 70$	0x77
C2	1	EEP_Actual_Current_NormalL	Actual Charge Current for Quick (Low Cap) i.e. $0.1 \times 250 = 25$	0x32
C3	1	EEP_Actual_Current_TrickleH	Actual Charge Current for Trickle (Hi Cap) i.e. $0.05 \times 700 = 35$	0x19

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
C4	1	EEP_Actual_Current_TrickleL	Actual Charge Current for Trickle (Low Cap) i.e. $0.05 * 250 = 12$	0x19
C5	1	EEP_Batt_Icom	Saved Battery Icom	0x01
C6	1	EEP_Least_Charge_Time	Least charge time unit is minit	0x05
C7	1	EEP_Charge_Interval	Charge interval Time	0x64, 0x0
C9	1	EEP_MaxVoltage	Number of ADC step for battery max voltage	0xCE
CA	1	EEP_BATT_Option	Battery Task option	0x00
CB	1	EEP_MeasuringResistor	Resistance for measuring charge current unit is 1/10 ohm (ex: 0.1 ohm then 0x0A)	0x16
CC	1	EEP_PowClkSel	The parameter of DC/DC converter when return to continousreception Bit6-4 POW_CLK_SEL (BAT_CTRL_REG) DC/DC converter switching clock on pin DC_CTRL 000:115.2kHz 001:230.4kHz010: 384kHz 011:576kHz 100:1.152MHz Bit 0 LPM (BAT_CTRL_REG) 0:Low power mode disabled.	0x00
CD	F	EEP_AfeHandSet	Analog Front End Setting for Handset Mode Bit0-3: Mic_Gain: 1111 (+30dB) ~ 0000 (0dB) Bit4-6: Lsr_Att: 000 (+2dB) ~ 111 (- 12dB) Bit7: Don't Care	0x37
CE	1	EEP_AfeHeadSet	Analog Front End Setting for Headset Mode Bit0-3: Mic_Gain: 1111 (+30dB) ~ 0000 (0dB) Bit4-6: Lsr_Att: 000 (+2dB) ~ 111 (- 12dB) Bit7: Don't Care	0x16

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
CF	1	EEP_AfeSpPhone	Analog Front End Setting for Handset SpPhone Mode Bit0-3: Mic_Gain: 1111 (+30dB) ~ 0000 (0dB) Bit4-6: Lsr_Att: 000 (+2dB) ~ 111 (- 12dB) Bit7: Don't Care	0x27
D0	1	EEP_Dspaec	Dsp AEC Activate bit bit0: AEC_CLR_LEARN_DATA (1: Enable/0: Disable) bit1-7: Unuse	0x01
D1	1	EEP_DspEq1	DSP Parameter Voice Equalizer1 (each 2Byte) Pfil1C0: Equalizer1 Pfil1C0 Pfil1C1: Equalizer1 Pfil1C1 Pfil1C2: Equalizer1 Pfil1C2 Pfil1C3: Equalizer1 Pfil1C3 Pfil1C4: Equalizer1 Pfil1C4 Pfil1FinAtt: Equalizer1 Pfil1FinAtt Pfil1Foutgains: Equalizer1 Pfil1Foutgains Pfil2C0: Equalizer1 Pfil2C0 Pfil2C1: Equalizer1 Pfil2C1 Pfil2C2: Equalizer1 Pfil2C2 Pfil2C3: Equalizer1 Pfil2C3 Pfil2C4: Equalizer1 Pfil2C4 Pfil2FinAtt: Equalizer1 Pfil2FinAtt Pfil2Foutgains: Equalizer1 Pfil2Foutgains RxSumM4: Equalizer1 RxSumM4 RxSumM2: Equalizer1 RxSumM2	0x00, 0x40 0x00, 0x00 0x00, 0x00, 0x00 0x00, 0x00 0x00, 0x00 0x40, 0x00 0x50, 0x00 0x40, 0x00 0x00, 0x00 0x00, 0x00 0x00, 0x00 0x00, 0x00 0x40, 0x00 0x50, 0x00, 0x40 0x00, 0x40

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
F1	1	EEP_DspEq2	DSP Paramefer Voice Equalizer2 (each 2Byte) C0:Equalizer2 Pfill C0 C1:Equalizer2 Pfill C1 C2:Equalizer2 Pfill C2 C3:Equalizer2 Pfill C3 C4:Equalizer2 Pfill C4 Pfill FinAtt:Equalizer2 Pfill FinAtt Pfill Foutgains:Equalizer2 Pfill Foutfains Pfil2C0:Equalizer2 Pfil2C0 Pfil2C1:Equalizer2 Pfil2C1 Pfil2C2:Equalizer2 Pfil2C2 Pfil2C3:Equalizer2 Pfil2C3 Pfil2C4:Equalizer2 Pfil2C4 Pfil2 FinAtt:Equalizer2 Pfil2 FinAtt Pfil2 Foutgains:Equalizer2 Pfil2 Foutgains RxsumM4:Equalizer2 RxSumM4 RxsumM2:Equalizer2 RxSumM2	0x00, 0x40 0x00, 0x00 0x00, 0x00 0x00, 0x00 0x00, 0x00 0x40, 0x00 0x50, 0x00 0x40, 0x00 0x00, 0x00 0x00, 0x00 0x00, 0x00 0x40, 0x00 0x50, 0x00 0x40, 0x00 0x40
111	1	EEP_DspEq3	DSP Parameter Voice Equalizer3 (each 2Byte) PfillC0:Equalizer3 PfillC0 PfillC1:Equalizer3 PfillC1 PfillC2:Equalizer3 PfillC2 PfillC3:Equalizer3 PfillC3 PfillC4:Equalizer3 PfillC4 Pfill FinAtt:Equalizer3 Pfill FinAtt Pfill Foutgains:Equalizer3 Pfill Foutgains Pfil2C0:Equalizer3 Pfil2C0 Pfil2C1:Equalizer3 Pfil2C1 Pfil2C2:Equalizer3 Pfil2C2 Pfil2C3:Equalizer3 Pfil2C3 Pfil2C4:Equalizer3 Pfil2C4 Pfil2 FinAtt:Equalizer3 Pfil2 FinAtt Pfil2 Foutgains:Equalizer3 Pfil2 Foutgains RxsumM4:Equalizer3 RxSumM4 RxsumM2:Equalizer3 RxSumM2	0x00, 0x40 0x00, 0x00,0x00 0x00,0x00 0x00, 0x00 0x00, 0x00 0x40,0x00 0x50, 0x00 0x40, 0x00 0x00,0x00 0x00, 0x00 0x00, 0x00 0x00,0x00 0x40, 0x00 0x50, 0x00,0x40 0x00, 0x40

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
131	0	EEP_HandsetNumber	HandsetNumber each Subscription. (word x 4subs)	0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF, 0xFF
139	0	EEP_Subscription0	GAP Subscription Data. Storage for 4 subscriptions each with 53bytes. <Subscription> 12E : SUB_boAssignedIPUI 12F : SUB_abIPUI[14] 13D : SUB_abPARK[5] 142 : SUB_abSARI[4] 146 : SUB_bPLI 147 : SUB_bLAL 148 : SUB_abARIplusRPN[5] 14D : SUB_boZAP 14E : SUB_bZAP 14F : SUB_boServiceClass 150 : SUB_bServiceClass 151 : AK_boUAKavailable 152 : AK_boUAKproven 153 : AK_abUAK_or_AC[16]	All 0x00
20D	1	EEP_FlexKeyNumber	Flexible Key Setting	0x00, 0x00, 0x00, 0x00, 0x00, 0x00
213	1	EEP_UIconfih02	User_Setting Data Bit0-3: Standby Display Setting Bit4: CLIP Display 0:H/S Phonebook 1:PBX Setting	0x55

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
214	1	EEP_UIconfih03	User_Setting Data Bit0:Any Key Answer 0:OFF 1:ON Bit1-2: Auto Answer 0:OFF 1: Internal 2:Int & External Bit3 charger ;0 Ringer Setting 1: Ringer Off Bit4-5: Vibration and Ringer Setting 00:Vib6Ring 01:Vib->Ring 02:Vib Off Bit6-7:LCD Contrast 01:Low 10:Middle 11:High	0x20
215	2	EEP_TotalHandsetCharge		0x00, 0x00 0x00, 0x00
219	1	EEP_iMelodyRcvFlg	I-Melody Data bit0: Ringer21 [1:Exit/0:No exit] bit1: Ringer22 [1:Exit/0:No exit] bit2: Ringer23 [1:Exit/0:No exit] bit3: Ringer24 [1:Exit/0:No exit] bit4: Ringer25 [1:Exit/0:No exit] bit5-bit7: Reserve	0x00
21A	1	EEP_CatName	Category Name for User Setting	All 0x00
274	1	EEP_iMelodyData	I-Melody StoredData	All 0x00
4F4	1	EEP_DirectoryUsedLoc	Directory used loc	0x00
3F0	2	EEP_ClipCtrlTbl	Clip Data Access Index	0x00
3FA	2	EEP_ClipInfoTbl	Caller ID Save Area	0x00
4F5	1	EEP_DirectoryFirstChain	Directory first chain	0x00
4F6	1	EEP_DirectoryChain	Directory chain	All 0x00
686	1	EEP_DirectoryData	Directory record data	All 0x00
1EBE	2	EEP_HSPinCode	Handset Pin : 4 BCD Digits	0x00, 0x00
1EC0	2	EEP_SubscriptionNumber	Selected subscription	0x00
1EC1	2	EEP_LEDColor	LED Color Bit:2-3Ext Bit4-5:Int Bit6-7:Grp Bit0 -1:TCD500 (Not New PBX) 0x00 (Green), 0x01 (Orange), 0x02 (Yellow)	0x84

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
1EC2	2	EEP_WTMode	Walkie Talkie Mode: 00: Common Mode 01: Group Mode	0x01
1EC3	2	EEP_WTHandsetNo	Walkie Talkie Handset Number in Group Mode: 01-09: Valid range FF: Handset Number not set.	0x01
1EC4	2	EEP_WTGroupId	Walkie Talkie Group Id in Group Mode: 0000-0999: Valid range (BCD coded) FFFF: Group Id not set.	0x00, 0x0
1EC6	2	EEP_DirectCall	Direct Call Number 1stByte: Direct Call Length 2-13byte: Direct Call Number	0x00, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF
1ED3	2	EEP_ReDialCtl	For Redial List Control bit0 - Exist Flag [1:No exist / 0 : Exist] bit1~7 - Index for EEP_ReDial	0x80, 0x81 0x82, 0x83 0x84, 0x85, 0x86 0x87, 0x88 0x89
1EDD	2	EEP_PrivateCatDat	Private Ringer/LED Setting 0bit-1bit : LED Color 2bit-7bit : Ringer Type	0x04, 0x04 0x04, 0x04 0x04, 0x04, 0x04 0x04, 0x0
1EE6	2	EEP_HotKeyIndex	Hot Key Index	0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF, 0xFF 0xFF

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
1EEF	2	EEP_Language	User_Setting Language GERAM:0 ENGLISH:1 SPANISH:2 NORWEGIAN:3 FRENCH:4 ITALIAN:5 DENISH:6 DUTCH:7 SWEDISH:8 FINNISH:9 GREEK:10 TURKISH:11 HUNGARIAN:12 PORTUGUESE:13 RUSSIAN:14	0x01
1EF0	2	EEP_SmsEatoniLanguage	Eatoni Setting Language GERAM:0 ENGLISH:1 SPANISH:2 NORWEGIAN:3 FRENCH:4 ITALIAN:5 DENISH:6 DUTCH:7 SWEDISH:8 FINNISH:9 GREEK:10 TURKISH:11 HUNGARIAN:12 PORTUGUESE:13 RUSSIAN:14	0x01
1EF1	2	EEP_Ringer_Volume	Current RingerVolume	0x03
1EF2	2	EEP_EarReceiver_Volume	Current Ear-ReceiverVolume	0x02
1EF3	2	EEP_HeadSet_Volume	Current HeadSet Volume	0x02
1EF4	2	EEP_SpPhone_Volume	Current SP-Phone Volume	0x03
1EF5	2	EEP_AudibleCallSetting	Audible Call Setting	0x00
1EF6	2	EEP_ReDial	For Redial List 24digits (1+12Byte) x 10calls	All 0x00
1F78	2	EEP_MemoAlarm_setting	Memo Alarm Setting Data	#####
1FE7	2	EEP_ExtMelodyIndex	Melody played when incoming external call Ringer1~Ringer25 (0x01~0x19)	0x01
1FE8	2	EEP_IntMelodyIndex	Melody played when incoming internal call Ringer1~Ringer25 (0x01~0x19)	0x01
1FE9	2	EEP_PageMelodyIndex	Melody played when paging Ringer1~Ringer25 (0x01~0x19)	0x01
1FEA	1	EEP_SupplementCharge	BATT parameter supplement charge counte	0x00, 0x0
1FEC	1	EEP_SupplementCharge_Rate	BATT parameter ratio of supplement charge	0xA0
1FED	2	EEP_GrpMelodyIndex	Melody played when incoming group call Ringer1~Ringer25 (0x01~0x19)	0x01

Address (0x0000 ~0x027F)	Initial Type	EEPROM Name	Description	Default val
1FEE	2	EEP_AutoAnsDelay	Auto Answer Delay 0x05-0x14 (Delav Time (SEC))	0x06
1FEF	2	EEP_TruncCd	Tranc Access Code 4Byte *3 CODE 4Byte (BCD)= 1st bvte:Length /2nd- 4th bvte:Acccess Code	0x00, 0x00 0x00, 0x00 0x00, 0x00 0x00, 0x00 0x00, 0x00 0x00, 0x00
1FFB		EEP_DataNotInRamEnd		

24. HOW TO REPLACE FLAT PACKAGE IC

24.1. Preparation

- PbF (: Pb free) Solder

- Soldering Iron

Tip Temperature of 700°F ± 20°F (370°C ± 10°C)

Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.

- Flux

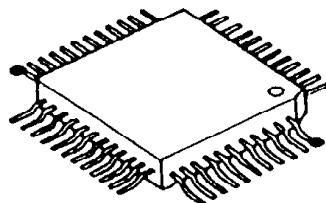
Recommended Flux: Specific Gravity → 0.82.

Type → RMA (lower residue, non-cleaning type)

Note: See [ABOUT LEAD FREE SOLDER \(PbF: Pb free\)](#) ().

24.2. Procedure

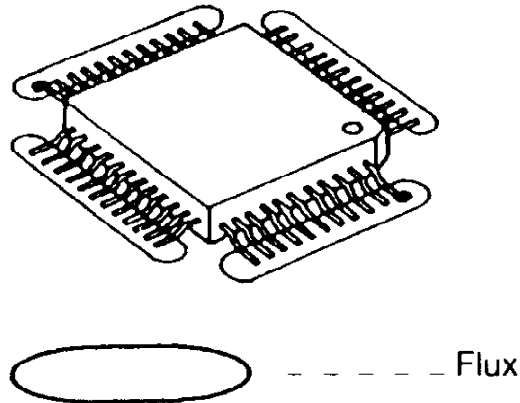
1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.



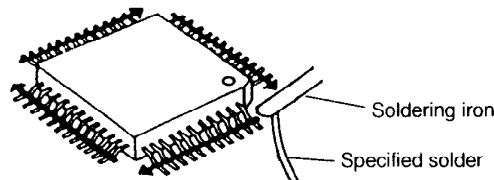
● - - - - - Temporary soldering point.

Be certain each pin is located over the correct pad on the PCB.

2. Apply flux to all of the pins on the IC.

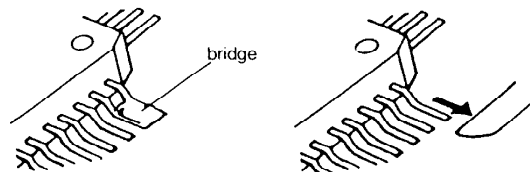


3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.

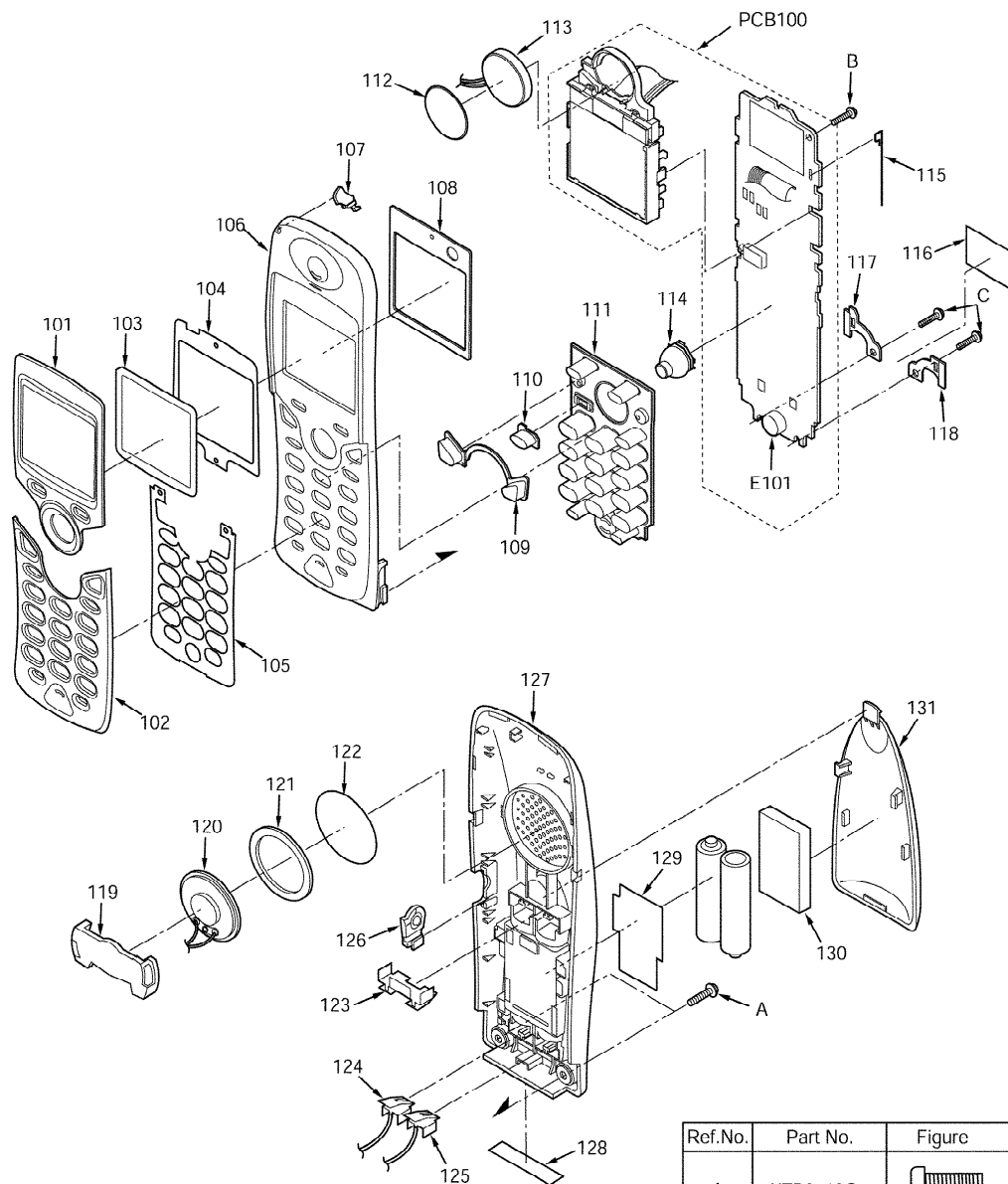





24.3. Modification Procedure of Bridge

1. Add a small amount of solder to the bridged pins.
2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.

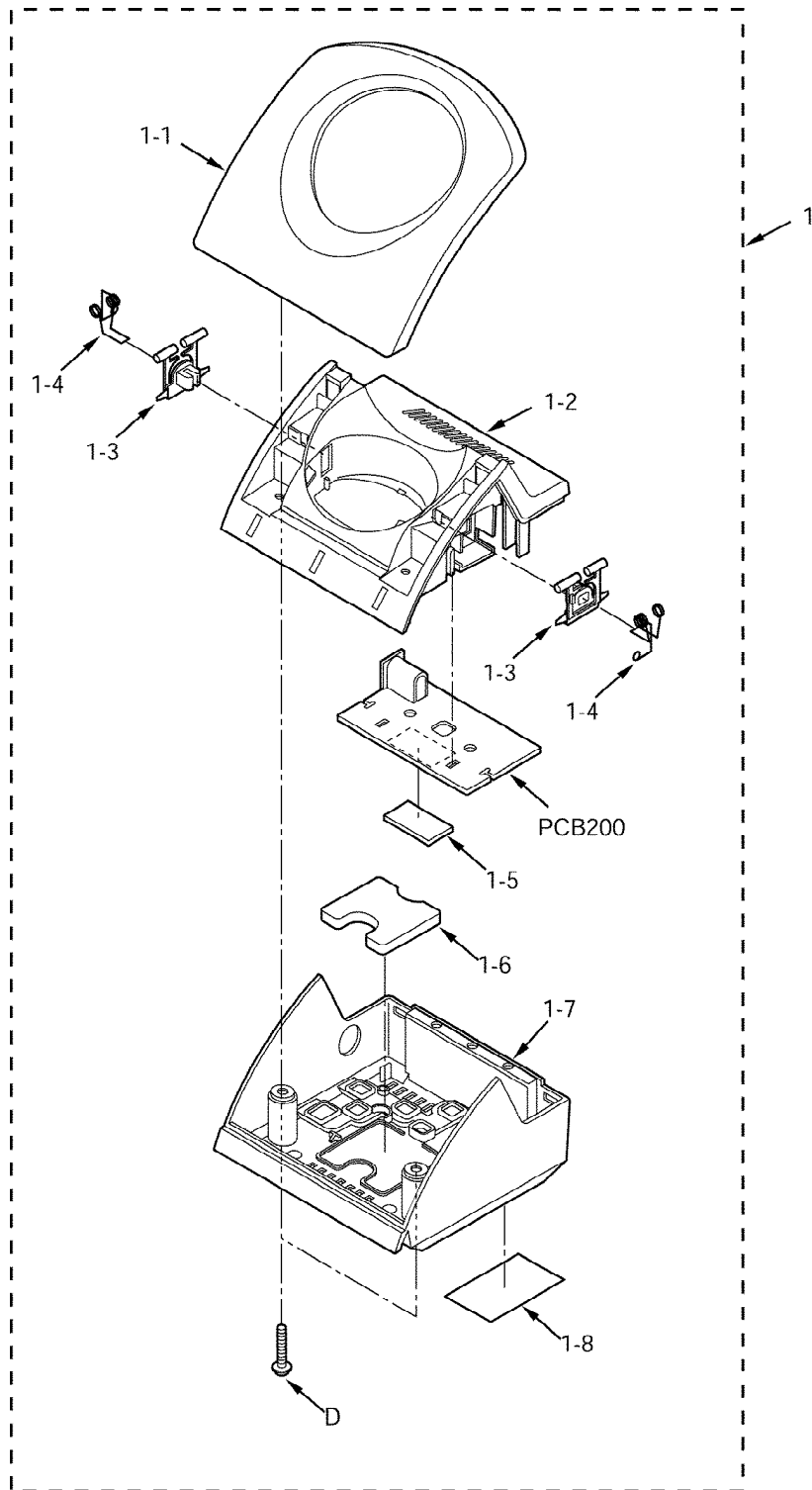


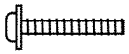
25. CABINET AND ELECTRICAL PARTS LOCATION (HANDSET)



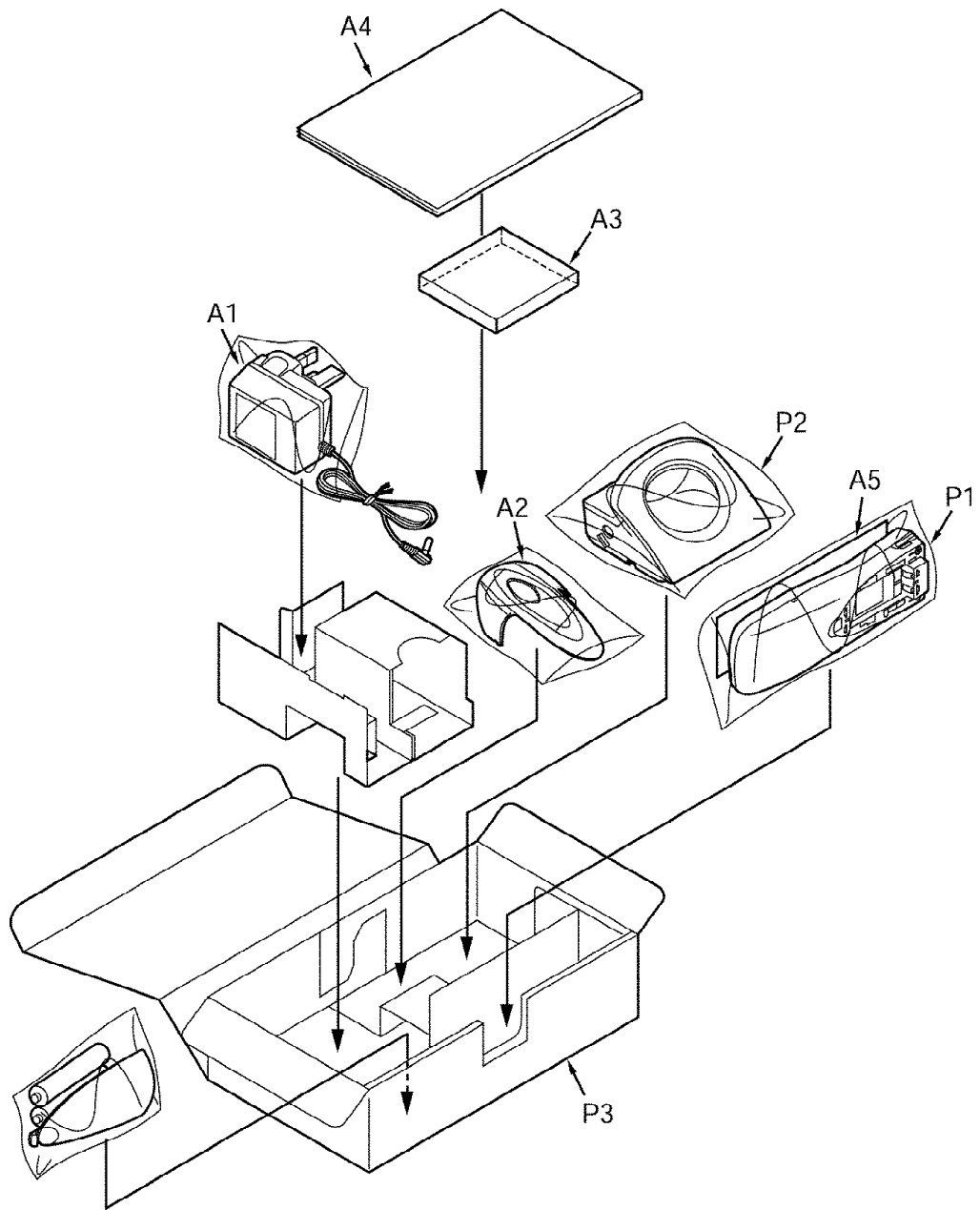
Ref.No.	Part No.	Figure
A	XTB2+10G	 $\phi 2 \times 10\text{mm}$
B	XTB2+8G	 $\phi 2 \times 8\text{mm}$
C	XTB2+8G	 $\phi 2 \times 8\text{mm}$

26. CABINET AND ELECTRICAL PARTS LOCATION (CHARGER UNIT)



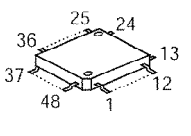
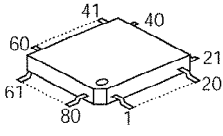
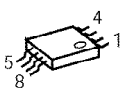
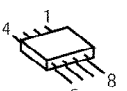
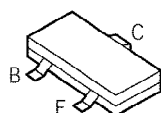
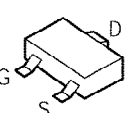

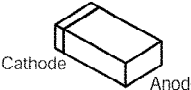
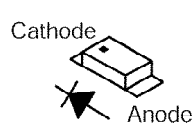
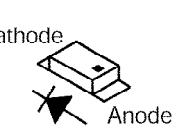
Ref.No.	Part No.	Figure
D	XTW26+14P	 $\phi 2.6 \times 14\text{mm}$

27. ACCESSORIES AND PACKING MATERIALS

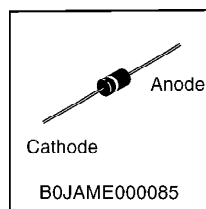


28. TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES

28.1. Handset

 <p>C1BB00000783</p>	 <p>C1CB00001598</p>	 <p>C1BB00000265</p>	 <p>PQVIT2464WM6 C0JBAB000371</p>
 <p>PSVTDTC143X, PQVT143XK146, UN9219J, B1ADGE000004, B1ABCF000103</p>		 <p>PQVTFDN395N</p>	 <p>B0BC2R1A0006 MA80360H MA80470 B0JCDD000002 MA2Z72000</p>
 <p>B0JCME000035</p>	 <p>B3AEB0000029 LNJ308G8JRA</p>	 <p>PQVDBR1111C</p>	

28.2. Charger Unit



29. REPLACEMENT PARTS LIST


1. RTL (Retention Time Limited)

Note:

The marking (RTL) indicates that the Retention Time is limited for this item.

After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention. After the end of this period, the assembly will no longer be available.

2. Important safety notice

Components identified by the  mark indicates special characteristics important for safety. When replacing any of these components, only use specified manufacture's parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. ISO code (Example: ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS

Unless otherwise specified;

All resistors are in ohms (Ω) K=1000 Ω , M=1000k Ω

All capacitors are in MICRO FARADS (μ F)P= μ μ F

*Type & Wattage of Resistor

Type					
ERC:Solid ERDS:Carbon ERJ:Chip		ERX:Metal Film ERG:Metal Oxide ERO:Metal Film		PQ4R:Chip ERS:Fusible Resistor ERF:Cement Resistor	
Wattage					
10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
*Type & Voltage Of Capacitor					
Type					
ECFD:Semi-Conductor ECQS:Styrol ECUV,PQCUV,ECUE:Chip ECQMS:Mica		ECCD,ECKD,ECBT,F1K,ECUV: Ceramic ECQE,ECQV,ECQG:Polyester ECEA,ECST,EEE:Electlytic ECQP:Polypropylene			
Voltage					
ECQ Type	ECQG ECQV Type	ECSZ Type	Others		
1H:50V 2A:100V 2E:250V 2H:500V	05:50V 1:100V 2:200V	0F:3.15V 1A:10V 1V:35V 0J:6.3V	0J :6.3V 1A :10V 1C :16V 1E,25:25V	1V :35V 50,1H:50V 1J :16V 2A :100V	

29.1. Handset

29.1.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
101	PQGG10159Y2	GRILLE LCD	ABS-HB
102	PQGP10230X2	PANEL, KEY	ABS-HB
103	PQGP10231Z	PANEL,LCD	PC-HB
104	PQHS10567Z	TAPE DOUBLE SIDE (LCD)	
105	PQHS10568Z	TAPE DOUBLE SIDE (KEY)	
106	PQKM10595Z5	CABINET BODY	ABS-HB
107	PQGP10232Z	OPTIC CONDUCTIVE PARTS LED LENS	ABS-HB
108	PQHE10141Z	SPACER LCD SPONGE	
109	PQBX10369Z1	PUSH BUTTON TALK	ABS-HB
110	PQBC10380Z1	PUSH BUTTON SP PHONE	ABS-HB
111	PQSX10226Z	KEYBOARD SWITCH	
112	PQHS10467Z	COVER, SP NET	
113	L0AD02A00015	SPEAKER	
114	PQBC10381Z1	PUSH BUTTON CUSOL	ABS-HB
115	PQSA10134Z	ANTENNA	
116	PQHX11202Z	INSULATOR, SHEET	
117	PQJT10204Z	TERMINAL (L)	
118	PQJT10205Z	TERMINAL (R)	
119	PQHR10964Z	GUIDE SPEAKER	ABS-HB
120	L0AD02A00010	SPEAKER	
121	PQHG10666Z	SPACER SP RUBBER SHEET	
122	PQHS10457Z	COVER, SP NET	
123	PQJC10056Z	BATTERY TERMINAL C	

Ref. No.	Part No.	Part Name & Description	Remarks
124	PQJC10057Z	BATTERY TERMINAL A	
125	PQJC10058Z	BATTERY TERMINAL B	
126	PQKE10357Z1	COVER, EARPHONE	
127	PQKF10583Y	CABINET COVER	ABS-HB
128	PSGT2494Z	NAME PLATE (for KX-TCA155E)	
128	PSGT2479Z	NAME PLATE (for KX-TCA155CE)	
129	PSHX1220Z	PLASTIC PARTS BATTERY COVER SHEET	
130	PQHS10561Y	SPACER BATTERY COVER	
131	PQKK10134Y	LID, BATTERY	ABS-HB

29.1.2. Main P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB100	PQWP1D155CER	MAIN P.C.BOARD ASS'Y (RTL)	
		(ICs)	
IC1	C1CB00001598	IC	
IC2	C1BB00000265	IC	
IC4	C1BB00000783	IC	
IC5	C0JBAB000371	IC	
IC10	PQVIT2464WM6	IC	
		(TRANSISTORS)	
Q1	PQVTFDN335N	TRANSISTOR(SI)	S
Q2	B1ADGE000004	TRANSISTOR(SI)	
Q3	B1ADGE000004	TRANSISTOR(SI)	
Q4	B1ADGE000004	TRANSISTOR(SI)	
Q5	B1ABCF000103	TRANSISTOR(SI)	
Q7	PQVT143XK146	TRANSISTOR(SI)	S
Q8	B1ADGE000004	TRANSISTOR(SI)	
Q9	UN9219J	TRANSISTOR(SI)	
Q10	PSVTDTC143X	TRANSISTOR(SI)	S
Q11	PSVTDTC143X	TRANSISTOR(SI)	S
		(DIODES)	
D1	B0JCME000035	DIODE(SI)	
D3	MA8036H	DIODE(SI)	S
D4	MA8047	DIODE(SI)	S
D5	MA8047	DIODE(SI)	S
D6	B0BC2R1A0006	DIODE(SI)	
D7	MA2Z72000	DIODE(SI)	
D8	B0JCDD000002	DIODE(SI)	
LED1	B3AEB0000029	LED	
LED2	B3AEB0000029	LED	
LED4	LNJ308G8JRA	LED	
LED5	LNJ308G8JRA	LED	
LED6	LNJ308G8JRA	LED	
LED7	LNJ308G8JRA	LED	
LED8	LNJ308G8JRA	LED	
LED9	PQVDBR1111C	LED	S
LED10	PQVDBR1111C	LED	S
		(COILS)	
F1	PQLQR2M5N6K	COIL	S
L1	G1A470L00001	COIL	
L2	PQLQR4D4R7K	COIL	
L4	G1C100MA0072	COIL	

Ref. No.	Part No.	Part Name & Description	Remarks
L5	G1C100MA0072	COIL	
		(CRYSTAL OSCILLATORS)	
X1	H0D103500002	CRYSTAL OSCILLATOR	
X2	H2D600400004	CRYSTAL OSCILLATOR	
		(RESISTORS)	
R1	ERJ6RSJR10V	0.1	
R2	ERJ3EKF6802	68K	S
R3	ERJ3EKF1803	180K	S
R4	ERJ3GEYJ153	15K	
R5	ERJ3GEYJ471	470	
R6	ERJ3GEYJ103	10K	
R7	ERJ3GEYJ224	220K	
R9	ERJ3GEYJ562	5.6K	
R10	ERJ3GEYF203	20K	
R11	ERJ3GEYF103	10K	
R12	ERJ3GEYJ393	39K	
R14	ERJ3GEYJ330	33	
R15	ERJ3GEYJ100	10	
R17	ERJ3GEYJ470	47	
R18	ERJ3GEYJ121	120	
R20	ERJ3GEYJ102	1K	
R21	ERJ3GEYJ102	1K	
R24	ERJ3GEYJ474	470K	
R25	ERJ3GEYJ331	330	
R26	ERJ3GEYJ101	100	
R29	ERJ3GEYJ222	2.2K	
R34	ERJ3GEYJ184	180K	
R35	ERJ3GEYJ273	27K	
R36	ERJ3GEYJ683	68K	
R37	ERJ3GEYJ330	33	
R38	ERJ3GEYJ330	33	
R39	ERJ3GEYJ103	10K	
R40	ERJ3GEYJ223	22K	
R43	ERJ6RQJR22	0.22	
R46	ERJ3GEYJ474	470K	
R47	ERJ3GEYJ474	470K	
R48	ERJ3GEYJ330	33	
R50	ERJ3GEYJ101	100	
R51	ERJ3GEYJ105	1M	
R52	ERJ3GEYJ183	18K	
R55	ERJ3GEYJ103	10K	
R57	ERJ3GEYJ680	68	
R58	ERJ3GEYJ2R2	2.2	
R59	ERJ3GEYJ560	56	
R60	ERJ3GEYJ102	1K	
R61	ERJ3GEYJ103	10K	
R62	ERJ3GEYJ103	10K	
R63	ERJ3GEYJ103	10K	
R64	ERJ3GEYJ103	10K	
R66	ERJ3GEYJ103	10K	
R71	ERJ3GEYJ104	100K	
R72	ERJ3GEYJ102	1K	
R73	ERJ3GEYJ564	560K	
R74	ERJ3GEY0R00	0	

Ref. No.	Part No.	Part Name & Description	Remarks
R75	ERJ3GEY0R00	0	
R76	ERJ3GEYJ223	22K	
R77	ERJ3GEYJ681	680	
R80	ERJ3GEYJ100	10	
R81	ERJ3GEY0R00	0	
R90	ERJ3GEYJ103	10K	
		(CAPACITORS)	
C1	ECEV0JA331	330	
C2	ECST0JY106	10	
C3	ECUV1C104KBV	0.1	
C4	ECUV1H100DCV	10P	
C5	ECST0JY106	10	
C7	ECUV1H100DCV	10P	
C8	ECUV1A224KBV	0.22	
C9	ECUV1C683KBV	0.068	
C10	ECUV1C104KBV	0.1	
C12	ECUV1A105KBV	1	
C13	ECUV1C104KBV	0.1	
C14	ECUV1C104KBV	0.1	
C15	ECUV1C105ZFV	1	
C16	ECUV1C104KBV	0.1	
C17	ECUV1H100DCV	10P	
C18	ECUV1H102KBV	0.001	
C19	ECUV1C104KBV	0.1	
C20	ECUV1C104KBV	0.1	
C21	ECUV1C104KBV	0.1	
C22	ECUV1C104KBV	0.1	
C23	ECUV1C104KBV	0.1	
C24	ECUV1C104KBV	0.1	
C27	ECUV1A105KBV	1	S
C28	ECUV1A105KBV	1	S
C29	ECUV1A105KBV	1	S
C30	ECUV1A105KBV	1	S
C31	ECUV1C474KBV	0.47	
C32	ECUV1C474KBV	0.47	
C33	ECUV1C474KBV	0.47	
C34	ECUV1C474KBV	0.47	
C35	ECUV1C474KBV	0.47	
C37	ECUV1C683KBV	0.068	
C38	ECUV1H471JCV	470P	S
C39	ECUV1A105ZFV	1	
C40	ECST0JY106	10	
C42	ECUV1A106ZF	10	S
C44	ECUV1A105ZFV	1	
C45	ECUV1C104KBV	0.1	
C46	ECUV1C104KBV	0.1	
C47	ECUV1C104KBV	0.1	
C48	ECUV1C473KBV	0.047	
C49	ECUV1C104KBV	0.1	
C52	ECUV1C104KBV	0.1	
C54	ECUV1H330JCV	33P	
C55	ECUV1C104KBV	0.1	
C56	ECUV1H680JCV	68P	
C57	ECEV0JA331	330	

Ref. No.	Part No.	Part Name & Description	Remarks
C58	ECUV1C104KBV	0.1	
C59	ECUV1A105ZFV	1	
C60	ECUV1A475KB	4.7	
C61	ECUV1A105KBV	1	
C62	ECUV1A475KB	4.7	
C63	ECUV1H562KBV	0.0056	
C64	ECUV1H020CCV	2P	
C65	ECUV1H020CCV	2P	
C66	ECUV1H020CCV	2P	
C67	F1G1H100A420	10P	
C68	ECUV1C683KBV	0.068	
C69	ECUV1H020CCV	2P	
C70	ECUV1C104KBV	0.1	
C73	ECUV1C104KBV	0.1	
C74	ECUV1C104KBV	0.1	
C75	ECUV1H100DCV	10P	
C77	ECUV1H100DCV	10P	
C80	PQCUV1A225ZF	2.2	
C81	ECUV1H020CCV	2P	
C82	ECUV1H020CCV	2P	
C86	ECUV1C105ZFV	1	
C87	ECUV1H100DCV	10P	
C89	ECUV1H100DCV	10P	
C90	ECUV1H100DCV	10P	
C91	ECUV1H100DCV	10P	
C92	ECUV1H100DCV	10P	
C93	ECUV1H101JCV	100P	
C94	ECUV1H101JCV	100P	
C100	ECUV1A105ZFV	1	
C101	ECUV1C104KBV	0.1	
		(OTHERS)	
E101	L0CBAB000052	MICROPHONE	
IC3	J3FKK0000003	RF UNIT	
CN4	K2HD103D0001	JACK	
SW1	K0C115A00003	SEESAW SWITCH	

29.2. Charger Unit



29.2.1. Cabinet and Electrical Parts

Ref. No.	Part No.	Part Name & Description	Remarks
1	PQLV30018ZLS	ACCESSORY PARTS	
1-1	PQGG10155Y9	GRILLE	ABS-HB
1-2	PQKM10591Z2	CABINET BODY	PS-HB
1-3	PQKE10356Z1	GUIDE, CHARGE TERMINAL CASE	POM-HB
1-4	PQJT10206Z	CHARGE TERMINAL	
1-5	PQHX10991Z	CUSHION, URETHANE FORM	
1-6	PQMH10426Z	WEIGHT	
1-7	PQYF10563Z2	CABINET COVER	PS-HB
1-8	PSGT2478Z	NAME PLATE	

29.2.2. Main P.C.Board Parts

Ref. No.	Part No.	Part Name & Description	Remarks
PCB200	PQWPA142ESCH	MAIN P.C.BOARD ASS'Y (RTL)	
		(DIODE)	
D1	B0JAME000085	DIODE(SI)	
		(JACK)	
CN1	PQJJ1B4Y	JACK	S
		(RESISTORS)	
R1	ERJ1WYJ220	22	
R2	ERJ1WYJ270	27	

29.3. Accessories and Packing Materials

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PQLV200EZ	AC ADAPTOR (for KX-TCA155E)	
A1	PQLV200CEZ	AC ADAPTOR (for KX-TCA155CE)	
A2	PQKE10355Z4	HANGER, BELT CLIP	PC+ABS-HB
A3	PSQX2997ZCD	CD-ROM	S
A4	PSQX3027Z	QUICK GUIDE (for KX-TCA155E)	
A4	PSQX2990Z	QUICK GUIDE (for KX-TCA155CE)	
A5	PQQW12846W	LEAFLET, RECHARGE	
P1	PQPP10084Z	PROTECTION COVER (for Handset)	
P2	PQPP10102Z	PROTECTION COVER (for Charger)	
P3	PSPK2196Z	GIFT BOX	

29.4. Fixtures and Tools

Part No.	Part Name & Description	Remarks
PSZZ1CA155EU	HANDSET JIG	
PSZZ2CA155EU	PC CABLE	

30. FOR SCHEMATIC DIAGRAM

30.1. Handset (**SCHEMATIC DIAGRAM (HANDSET)**)

Notes:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.
2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.

31. SCHEMATIC DIAGRAM (HANDSET)

32. SCHEMATIC DIAGRAM (CHARGER UNIT)

33. CIRCUIT BOARD (HANDSET)

33.1. Component View

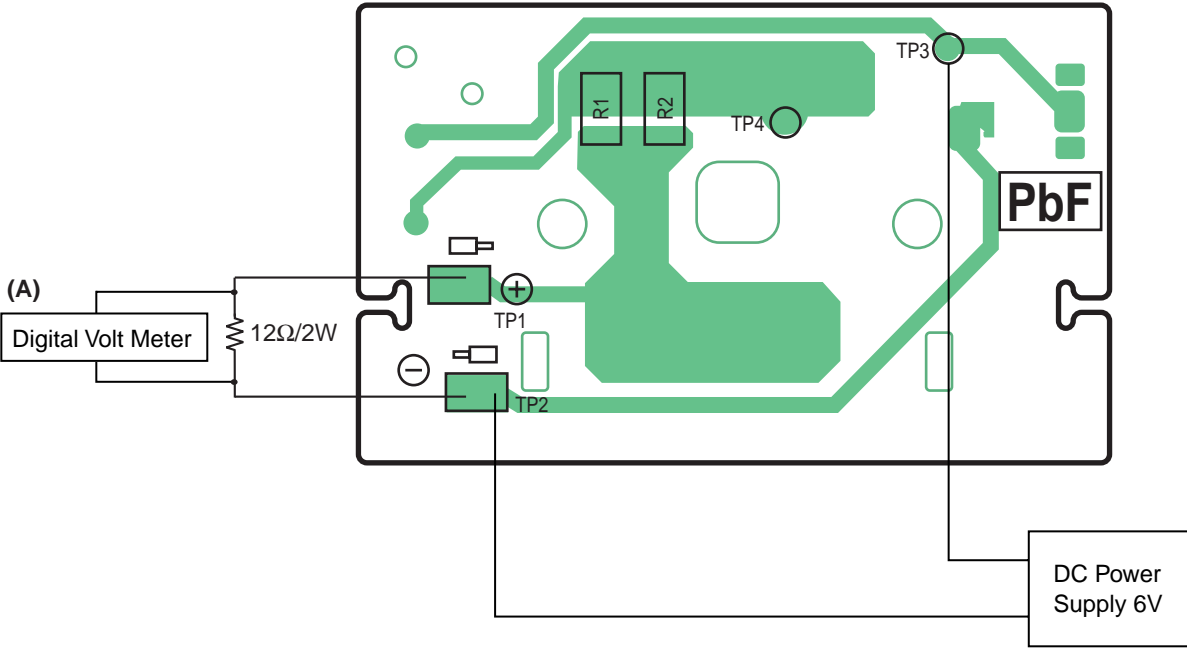
33.2. Flow Solder Side View

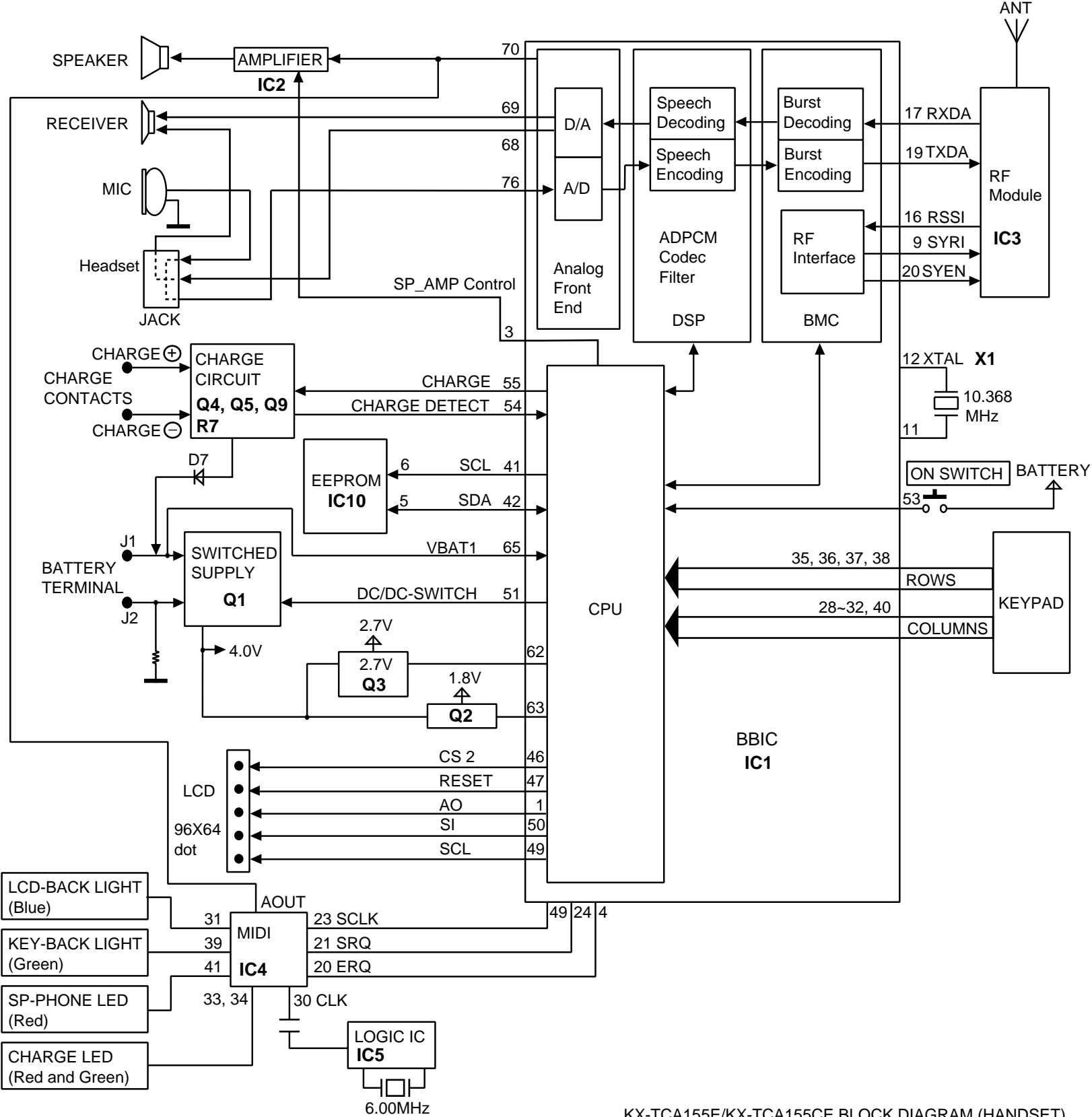
34. CIRCUIT BOARD (CHARGER UNIT)

34.1. Component View

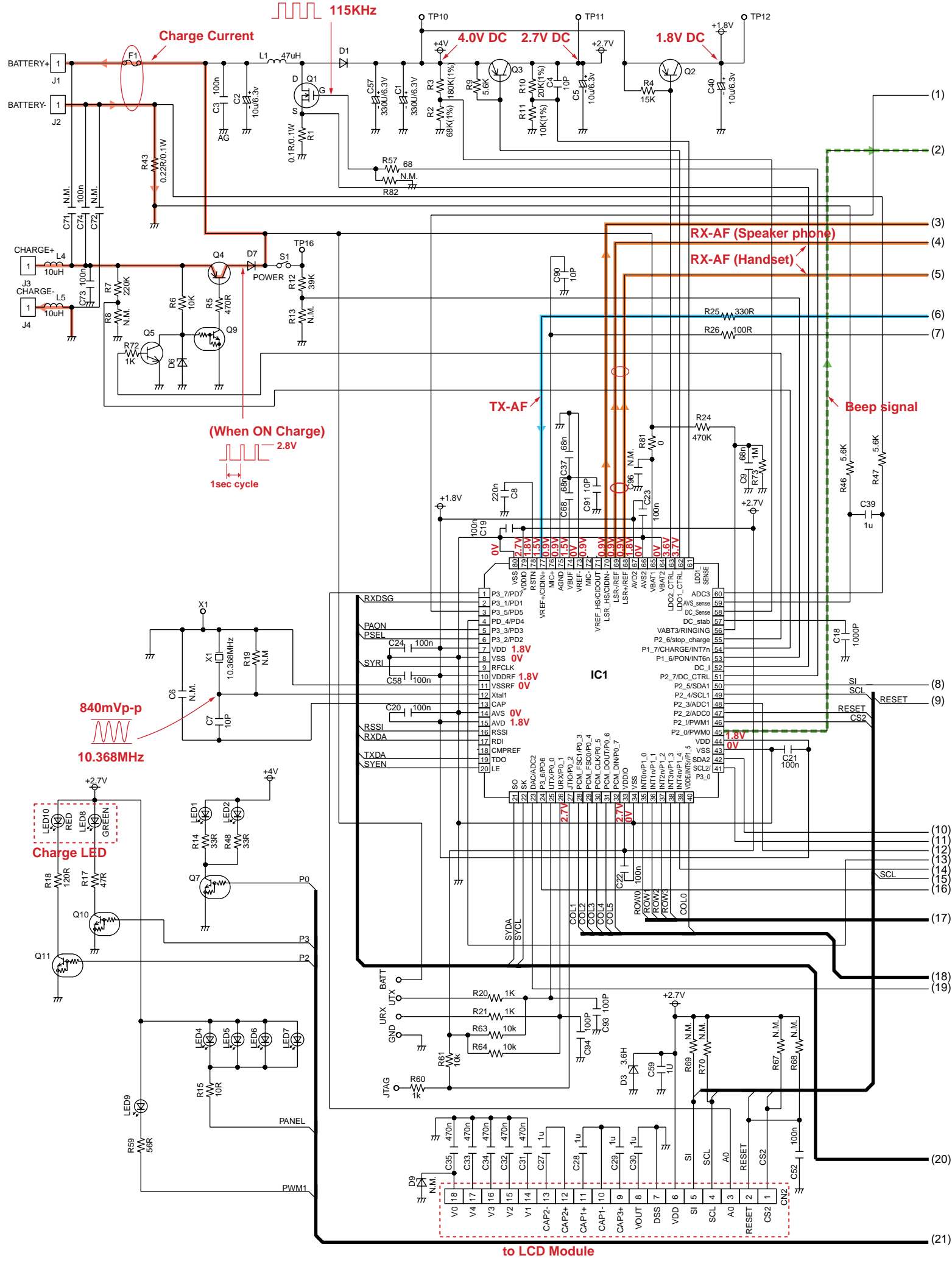
34.2. Flow Solder Side View

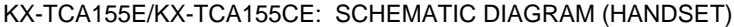
H / KXTCA155E / KXTCA155CE /

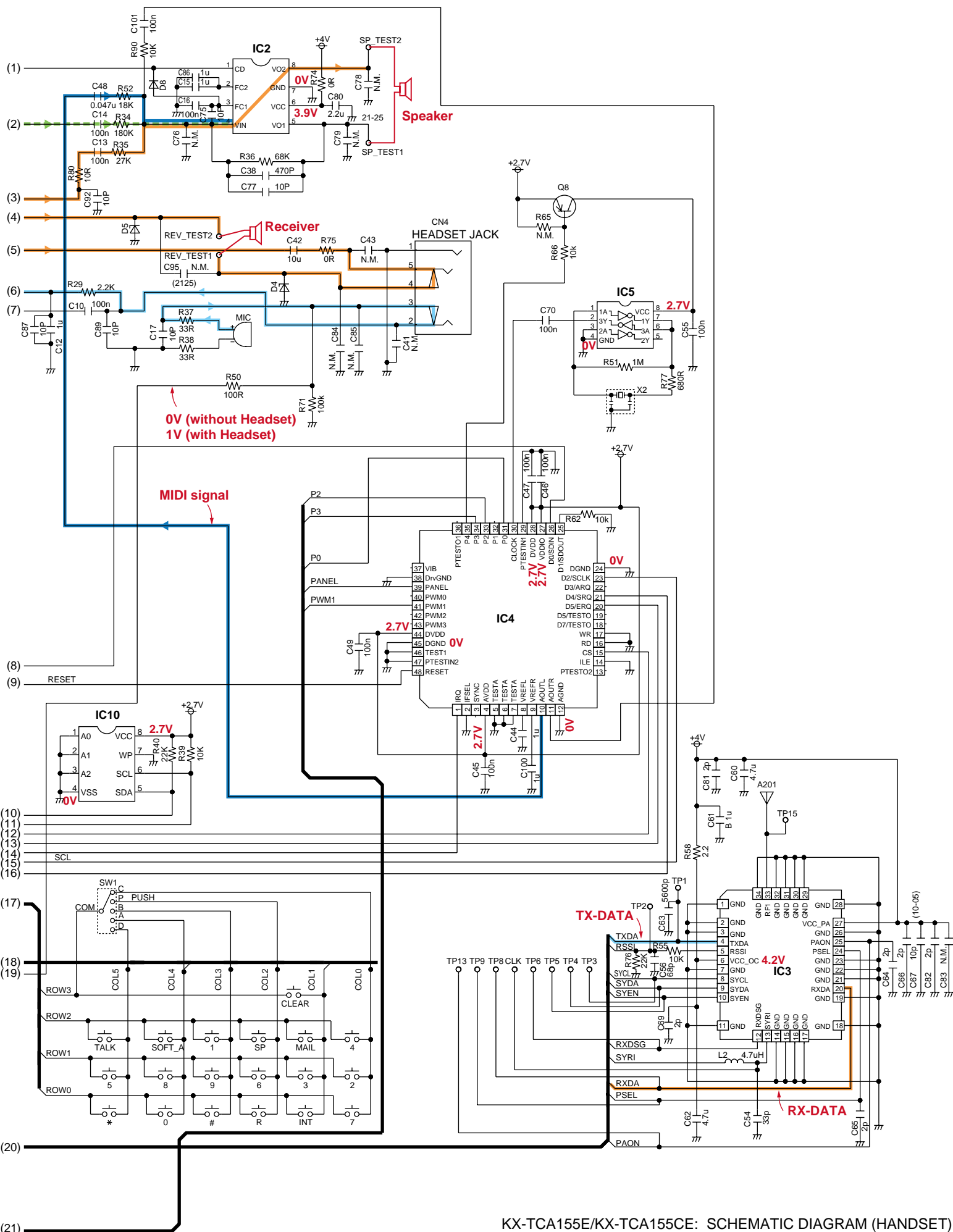




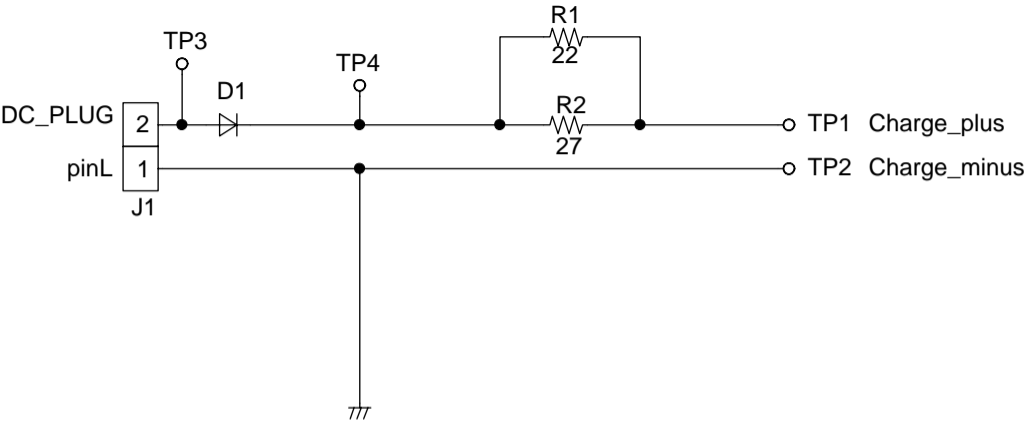
KX-TCA155E/KX-TCA155CE BLOCK DIAGRAM (HANDSET)



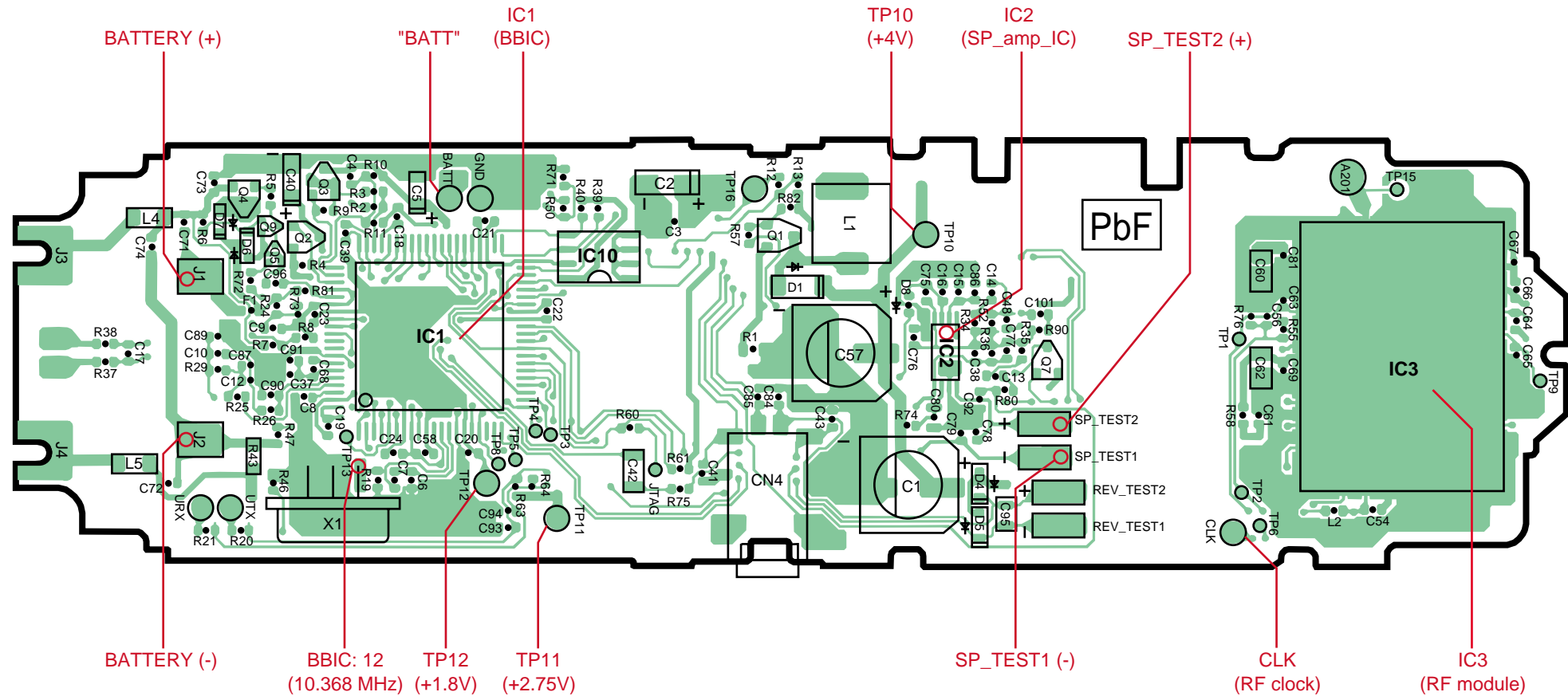




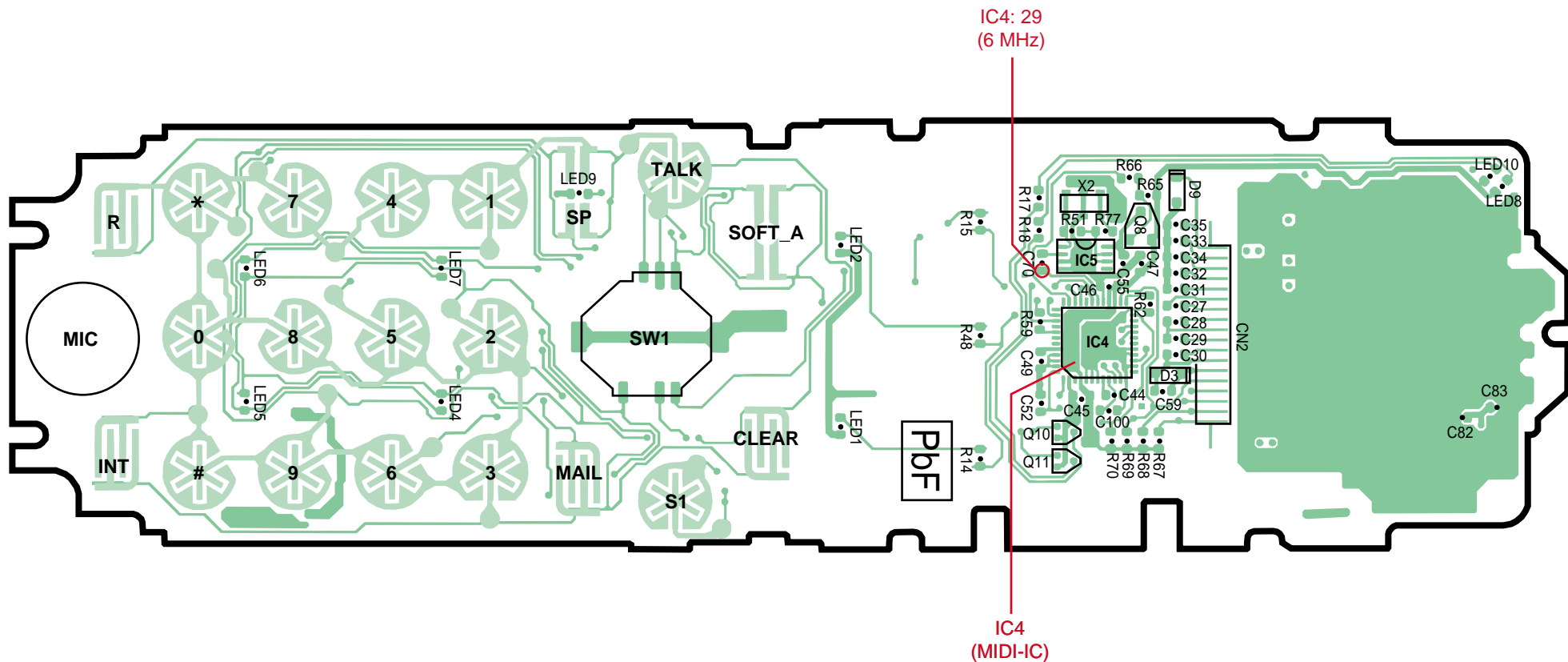
KX-TCA155E/KX-TCA155CE: SCHEMATIC DIAGRAM (HANDSET)

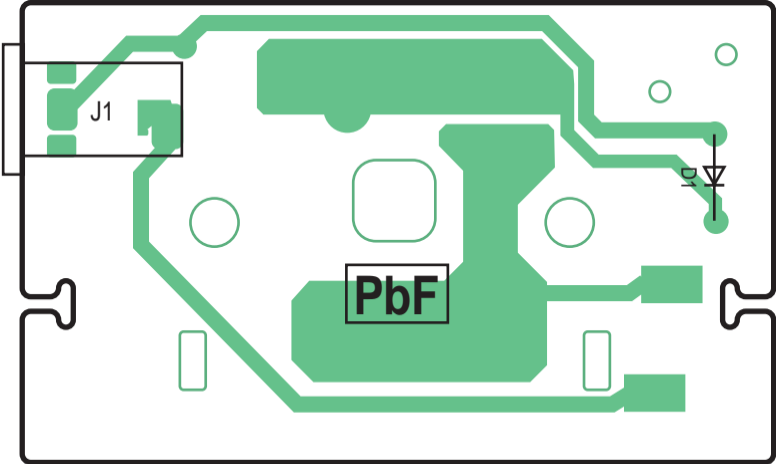


SCHEMATIC DIAGRAM (CHARGER UNIT)

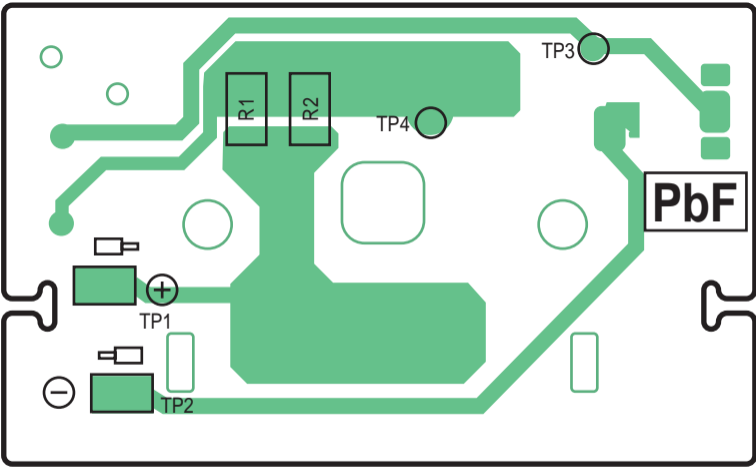


KX-TCA155E/KX-TCA155CE CIRCUIT BOARD (HANDSET) Component View



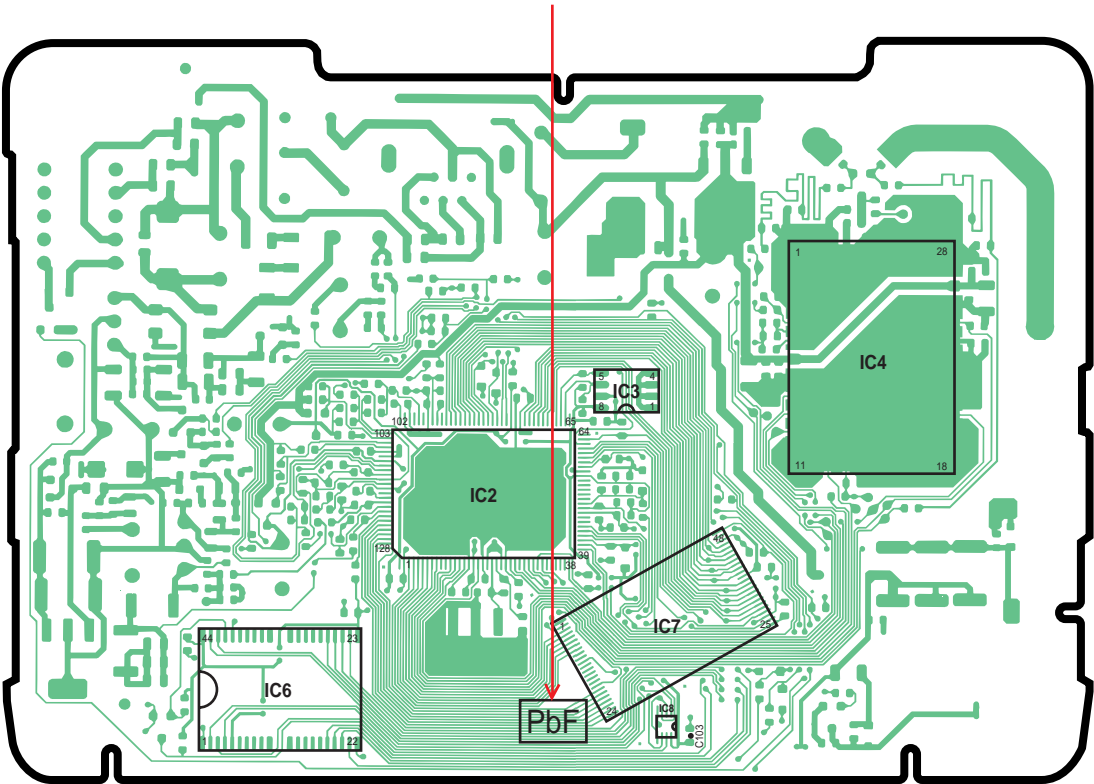


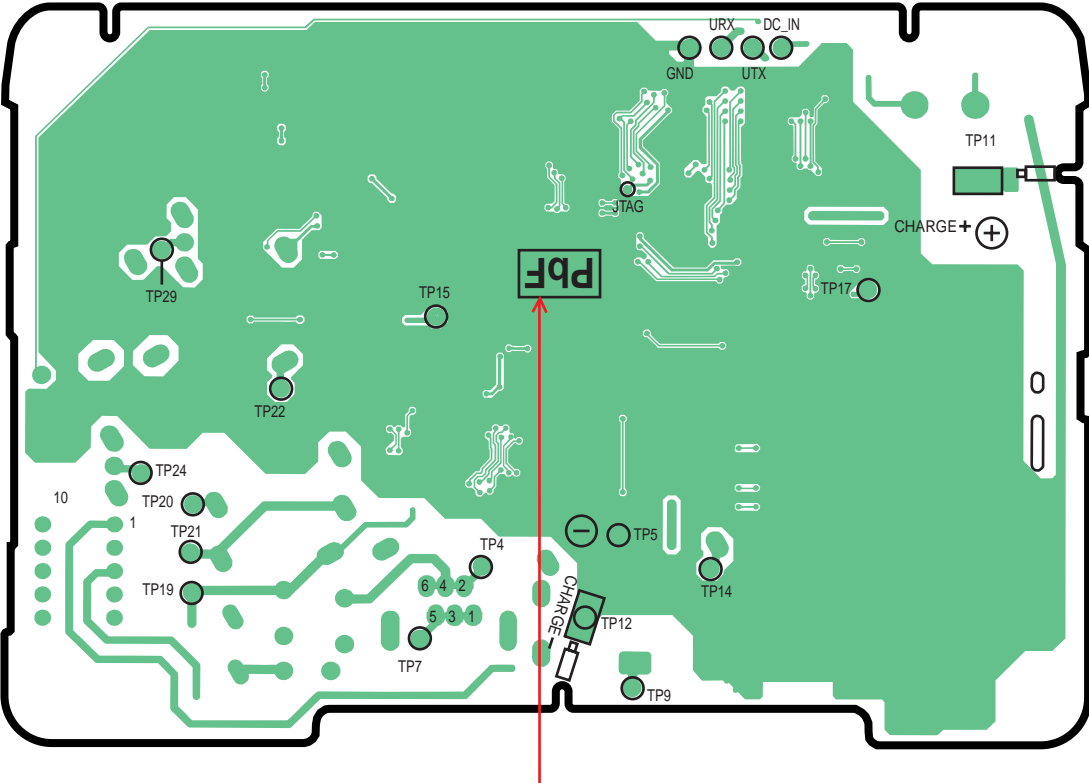
CIRCUIT BOARD (CHARGER UNIT) Component View



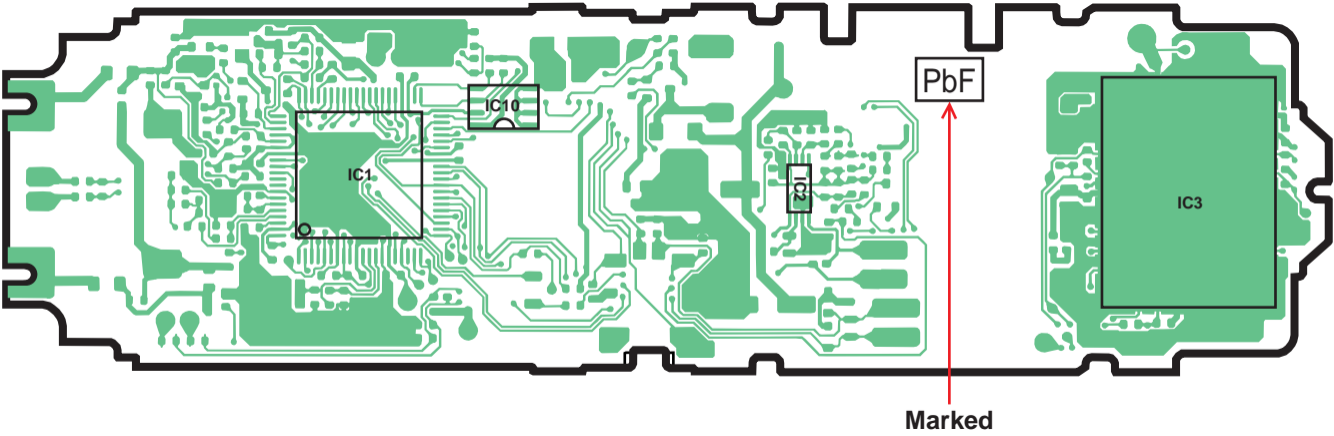
CIRCUIT BOARD (CHARGER UNIT) Flow Solder Side View

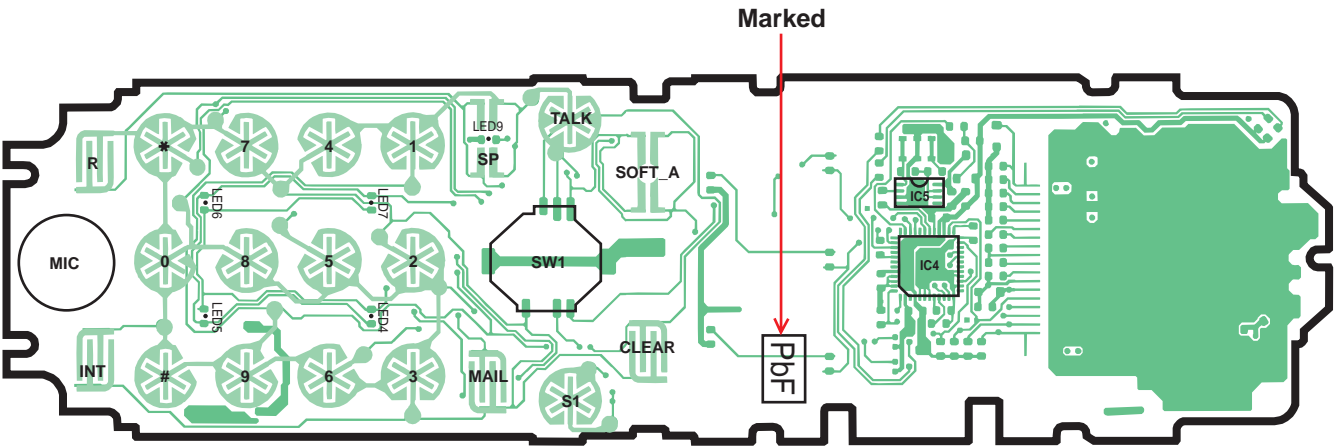
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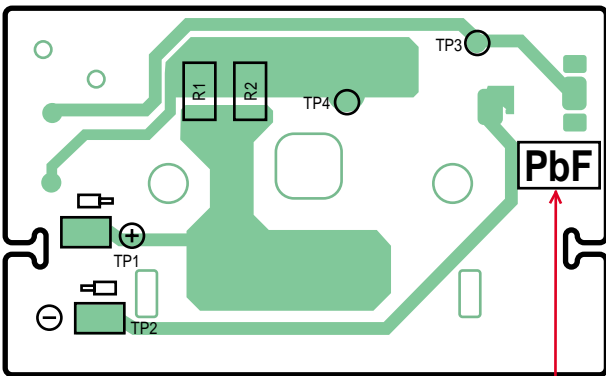




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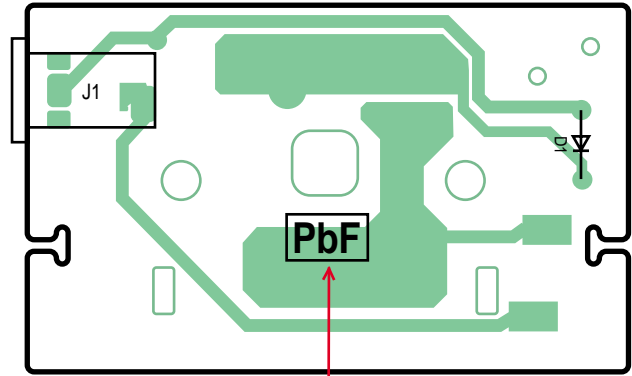






Marked

(Component View)



Marked

(Flow Solder Side View)

